

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**AMAZON.COM, INC.,
AMAZON.COM SERVICES LLC, and
AMAZON WEB SERVICES, INC.,**
Petitioners,

v.

SOUNDCLEAR TECHNOLOGIES, LLC,
Patent Owner.

IPR2025-01080
U.S. Patent No. 9,804,819

**PETITION FOR *INTER PARTES* REVIEW OF
CLAIMS 1-5 AND 7-8 OF U.S. PATENT NO. 9,804,819**

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TABLE OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 9,804,819
1002	Declaration of Richard Stern, Ph.D.
1003	Certified Translation of Japanese Patent App. Publ. No. JP2012182639A (“Kajiyama”)
1004	SHURE ULX WIRELESS SYSTEM USER GUIDE, https://web.archive.org/web/20100518230105/http://www.shure.com/idc/group/s/public/documents/webcontent/us_pro_ulx_wireless_en_ug.pdf (May 18, 2010 snapshot via the Wayback Machine) (“Shure”)
1005	U.S. Patent No. 8,843,222 (“Nelson”)
1006	Japanese Patent App. Publ. No. JP2012182639A
1007	<i>ULX® Professional Series Wireless</i> , SHURE, https://web.archive.org/web/20021015124623/http://www.shure.com/wireless/ulx/ulx_professional.asp (October 10, 2002 snapshot via the Wayback Machine) (“Shure Product Page”)
1008	Curriculum Vitae of Richard Stern, Ph.D.
1009	File History of U.S. Patent No. 9,804,819
1010	Declaration of Mina Ching
1011	Complaint, <i>SoundClear Techs. LLC v. Amazon.com, Inc.</i> , No. 2:24-cv-00320 (E.D. Va.), ECF No. 1
1012	Declaration of Samantha Matsunaka

Petitioners Amazon.com, Inc., Amazon.com Services LLC, and Amazon Web Services, Inc. (“Petitioners” or “Amazon”) respectfully request *inter partes* review of claims 1-5 and 7-8 of U.S. Patent No. 9,804,819 (“the ’819 patent”), which SoundClear Technologies LLC (“Patent Owner” or “PO”) purportedly owns.

I. INTRODUCTION

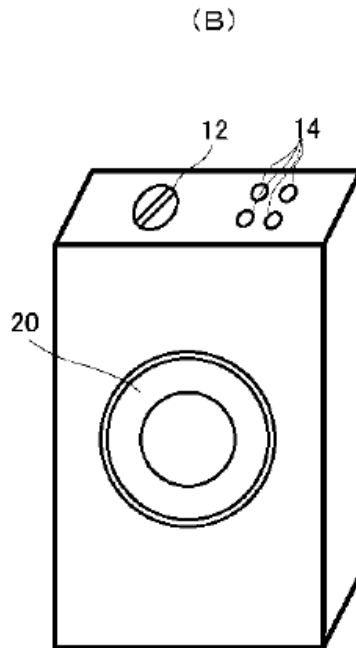
The ’819 patent relates to volume controls in audio devices. Specifically, the challenged claims relate to a volume lock feature wherein (1) a user can adjust the volume of audio output when the device is unlocked; (2) volume remains at a locked value regardless of user input when the device is locked; and (3) the device cannot be unlocked unless the user adjusts the volume controls to be within a desired range of the locked value. However, these concepts were well known and had been implemented in widely-available consumer devices. Accordingly, the challenged claims would have been obvious and the Board should cancel them.

II. BACKGROUND

Locking and unlocking the volume of electronic devices was well known long before the ’819 patent’s earliest possible priority date in December 2015. (EX-1002 ¶32.)

A. Kajiya

For example, Kajiya (EX-1003) discloses an audio output device with volume locking functionality. (EX-1002 ¶33.) Kajiya’s device is shown in Figure 1B:



(EX-1003, Fig. 1B.) The device includes a volume knob (12) (referred to as “volume reception unit” or “VR 12”) “for receiving a volume setting operation from a user,” and buttons (14) (referred to as “volume fixation operation reception unit” or “UI 14”) “for receiving various operations such as content selection, a volume fixation operation, and a power on/off operation.” (*Id.* ¶¶[0022], [0028].)

A user may switch the audio device between locked and unlocked states by “pressing and holding” buttons of the volume fixation operation reception unit. (*Id.* ¶[0031]; EX-1002 ¶34.) When the device is unlocked, pressing the buttons causes

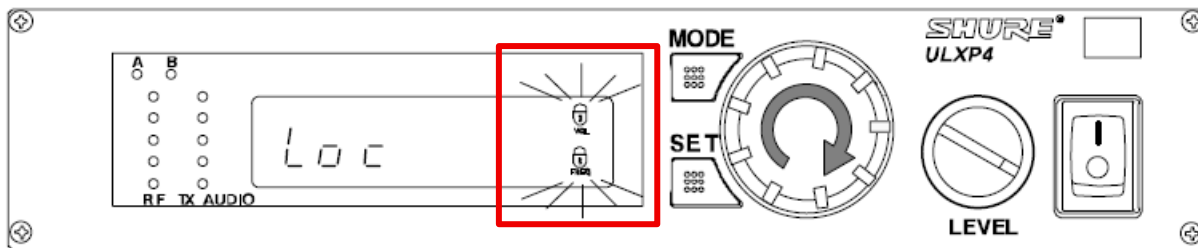
a “volume fixation operation” (also referred to as a “locking operation”) that locks the device. (EX-1003 ¶¶[0012], [0031]; EX-1002 ¶34.) The device stores the volume setting at the time the device was locked and maintains that volume regardless of whether the volume knob is adjusted. (EX-1003 ¶¶[0012], [0022], [0031]; EX-1002 ¶34.)

Pressing the buttons again when the device is locked causes a “volume fixation release operation.” (EX-1003 ¶¶[0012], [0031], [0043]-[0045]; EX-1002 ¶35.) However, the device remains locked until the volume is adjusted to match the locked volume level. (*Id.*) When the volume is sufficiently adjusted to match the locked volume level, the device is unlocked and the volume can again be changed by operating the volume knob. (*Id.*)

B. Shure

Shure, a global audio electronics manufacturer, released its ULXP4 receiver in 2002. (EX-1007; EX-1002 ¶36.) The user guide for the ULXP4 receiver (hereinafter “Shure”) discloses that a user can “lock the ULXP4 receiver ... output level to prevent unauthorized or accidental changes.” (EX-1004, 18; EX-1002 ¶38.) This locks the volume at a “locked level.” (*Id.*)

Shure explains that a user operates buttons on the front of the receiver to lock the receiver. (EX-1004, 18.) The receiver then displays “flashing lock icon(s)” as shown below:



(*Id.*, Fig. 44¹; *id.*, 18; EX-1002 ¶39.) The upper lock icon is the “Volume Lock Indicator” and “[a]ppears after the Volume level setting has been locked.” (EX-1004, 5, Fig. 3; EX-1002 ¶39.)

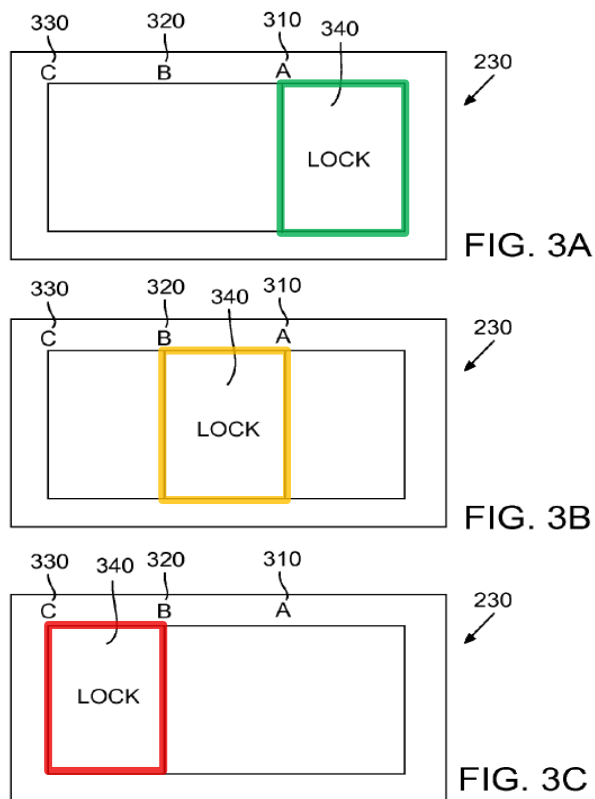
When a user wishes to change the output volume, the user simply uses the receiver’s buttons and control knob to unlock the receiver. (EX-1004, 18; EX-1002 ¶40.) However, “[i]f the volume control knob has been set to a level higher than the locked level, the output level will remain locked” until the user turns the volume down sufficiently, at which point the receiver can be unlocked. (*Id.*)

C. Nelson

Nelson discloses similar locking functionality for use in a media player. (EX-1005, Abstract, 1:62-2:16, Figs. 3A-3C; EX-1002 ¶41.) As Nelson recognizes, “many players provide a locking mechanism that causes the player to ignore or otherwise not receive any input commands ... such as buttons, scroll wheels, touchpads and so on.” (EX-1005, 1:29-40.) Nelson provides an improved locking functionality in which a user can “selectively enable or disable one or more input controls, such

¹ Images herein may be colored and/or annotated for clarity.

as volume controls.” (*Id.*, Abstract.) Nelson’s locking functionality uses a simple locking mechanism, such as “buttons, sliding mechanisms, soft-keys, and so on,” as shown below:



(*Id.*, Figs. 3A-3C.) When Nelson’s locking mechanism is in **position A**, as shown in Figure 3A, the player is in an “unlocked state.” (*Id.*, 4:50-67.) Moving the lock to **position B** places the player in a “selectively-locked state,” as shown in Figure 3B, while moving the lock to **position C**, as shown in Figure 3C, places the player in a “fully-locked state 330 where all input controls are disabled.” (*Id.*) Thus, a user may switch from the locked to the unlocked state and vice-a-versa by simply operating the locking mechanism. (*Id.*; EX-1002 ¶41.)

III. THE '819 PATENT

A. Overview

The '819 patent discloses a system and methods for controlling audio output by locking the output volume. (EX-1001, Abstract, 1:46-2:27; EX-1002 ¶42.) It admits that volume locks were known. (EX-1001, 1:19-24 (“transceiver typically has a volume lock function that locks audio volume” to “avoid a sudden output of audio ... when a volume key is inadvertently operated.”), 1:25-28 (known device “automatically returns a volume key that has been inadvertently operated to a position at any given point in time”); EX-1002 ¶42.) And, it admits that it was known to switch between a locked and unlocked state so that a device’s volume can be adjusted. (EX-1001, 1:29-32; EX-1002 ¶42.) The '819 patent’s purported novelty is simply preventing the device from unlocking while the volume is set to an undesirably high level, thereby preventing the output of undesirably loud audio when the device is unlocked. (EX-1001, 1:29-40; EX-1002 ¶42.)

B. Prosecution History

The patent application that issued as the '819 patent was filed on December 1, 2016, claiming priority to a Japanese Patent Application filed on December 7, 2015. (EX-1009, 23.) The Examiner allowed the claims without issuing a single Office Action. (*Id.*, 93.)

IV. STATEMENT OF PRECISE RELIEF REQUESTED

A. Grounds

Petitioners request cancellation of claims 1-5 and 7-8 under 35 U.S.C. §103 as follows:

Ground	Reference(s)	Challenged Claims
1A	Kajiyama	1-2, 4-5, 7-8
1B	Kajiyama and Nelson	1-2, 4-5, 7-8
1C	Ground 1A or 1B and Shure	3
2A	Shure and Nelson	1-5, 7-8
2B	Shure, Nelson, and Kajiyama	1-5, 7-8

The Petition is supported by the expert declaration of Richard Stern, Ph.D. (EX-1002; EX-1008.)

B. Status of References as Prior Art

Each reference is prior art under pre-AIA 35 U.S.C. §102(b) because it published more than one year before the patent's earliest possible priority date of December 7, 2015² (*see* EX-1001):

Kajiyama (EX-1003) published on September 20, 2012.

Shure (EX-1004) published no later than May 18, 2010 and was publicly available at that time. (EX-1010; *see also* EX-1004, 1 (2006 copyright date);

² Amazon does not concede the claims are entitled to that priority date and reserves its right to show they are not so entitled.

EX-1002 ¶¶36-37); *Keysight Techs., Inc. v. Centripetal Networks, LLC*, IPR2022-01525, Paper 9 (P.T.A.B. Apr. 17, 2023); *Valve Corp. v. Ironburg Inventions Ltd.*, 8 F.4th 1364, 1374 (Fed. Cir. 2021).

Nelson (EX-1005) published no later than September 23, 2014.

The references are analogous art because they are from the same field as the '819 patent, e.g., electronic and audio system design. (EX-1002 ¶22; EX-1001, Abstract); *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1000 (Fed. Cir. 2016). They are also pertinent to a problem the inventor was focused on, e.g., controlling audio output. (EX-1001, Abstract, 1:29-45; EX-1002 ¶22.)

Should PO challenge the prior art status of the references relied upon herein, Amazon reserves the right to submit supplemental evidence in support of the references' prior art status.

V. LEVEL OF ORDINARY SKILL

A POSITA is “a person of ordinary creativity, not an automaton.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Here, a POSITA would have had a minimum of a bachelor's degree in computer engineering, computer science, electrical engineering, mechanical engineering, or a similar field, and approximately three years of industry or academic experience in a field related to electronic and audio system design. (EX-1002 ¶¶27-31); see *In re GPAC Inc.*, 57 F.3d 1573, 1579

(Fed. Cir. 1995). Work experience could substitute for formal education and additional formal education could substitute for work experience. (*Id.*)

VI. CLAIM CONSTRUCTION

No claim terms require construction to resolve the invalidity challenges here. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). For purposes of this proceeding only, Amazon assumes the claims are not invalid under §112.

VII. GROUND 1A: CLAIMS 1-2, 4-5, AND 7-8 WOULD HAVE BEEN OBVIOUS IN VIEW OF KAJIYAMA.

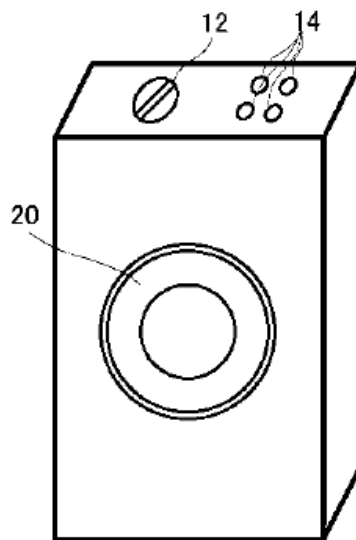
Kajiyama discloses an audio output device that receives audio signals and outputs audio. (*Supra* §II.A; EX-1002 ¶44.) The device includes a knob for adjusting the volume output level. (*Id.*) The device may be locked to prevent changes to the output volume and then unlocked to allow a user to adjust the volume. (*Id.*)

A. Claim 1

1. Preamble

The preamble recites “[a] receiving apparatus.” Kajiyama discloses an “audio output device” shown in Figure 1B:

(B)



(EX-1003 ¶[0022], Fig. 1B.) The output device receives audio signals “from another device (such as a server).” (*Id.* ¶¶[0023].) Accordingly, a POSITA would have understood the device is a receiving apparatus. (EX-1002 ¶45.) Kajiyama therefore discloses the preamble. (*Id.*)

2. Element 1[a]: Audio Output Unit

Element 1[a] recites “an audio output unit configured to output audio corresponding to an audio signal.” Kajiyama discloses or renders obvious this limitation. (*Id.* ¶¶46-48.)

Kajiyama discloses an audio output device that receives audio signals (*see supra* §VII.A.1), amplifies the signals, and outputs audio using a speaker. (EX-1003 ¶¶[0001] (“audio output device”), [0023]-[0025] (audio signals are “input from another device” and “output to an amplifier”), [0026] (“The audio signal amplified by

the amp 19 is output to the speaker 20 and emitted as sound.”); EX-1002 ¶47.) Kajiyama’s “playback unit 17” processes the audio signal and sends it to amplifiers. (EX-1003 ¶¶[0023], [0025]; EX-1002 ¶47.) The amplifiers then output an amplified audio signal to the speaker, which outputs corresponding audio. (EX-1003 ¶[0025]; EX-1002 ¶47.) Accordingly, Kajiyama’s amplifier(s) and speaker each receive an audio signal and output corresponding audio. (*See* EX-1001, 4:20-30, Fig. 2 (Audio Output Unit 62 outputting a signal to speaker 26); EX-1002 ¶47.)

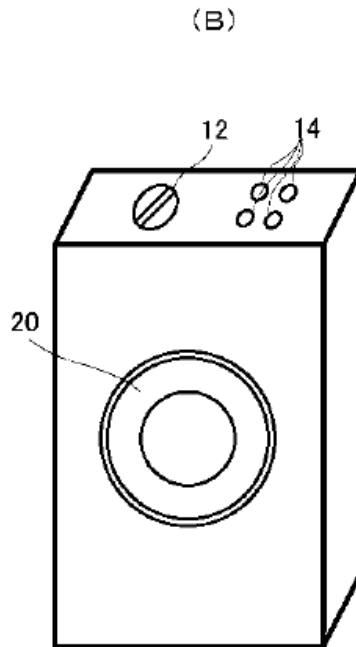
Kajiyama therefore discloses or renders obvious an audio output unit (e.g., amplifier or speaker) configured to output audio corresponding to an audio signal (e.g., the audio signal received by the amplifier or speaker). (EX-1002 ¶¶46-48.)

3. Element 1[b]: Volume Operating Unit

Element 1[b] recites “a volume operating unit configured to output an operating value indicating a volume level of the audio according to a user operation.” Kajiyama discloses or renders obvious this limitation. (*Id.* ¶¶49-53.)

The ’819 patent admits this element was known. (EX-1001, 1:19-28 (disclosing prior art devices with a “volume key” that adjusts volume); EX-1002 ¶50.)

Kajiyama discloses an audio device with a “volume reception unit” 12 “for receiving a volume setting operation from a user,” as shown in Figure 1B:



(EX-1003 ¶[0022], Fig. 1B.)

The volume reception unit outputs a value indicating a volume level of the audio according to a user operation. (*Id.* ¶¶[0012] (“the volume control unit controls the volume of the output audio in response to the volume setting operation received by the volume reception unit”), [0021] (device includes a “VR (hardware volume) 12”), [0022] (VR 12 is “volume reception unit”), [0027] (“the volume setting value is specified by the user using the VR 12”), [0028] (“VR 12 is a rotary knob that outputs a voltage value... [that] is converted into a digital value by the A/D converter 13 and input to the control unit 11. The control unit 11 stores a volume setting value corresponding to the input voltage value[.] ... This sets the volume of the output audio.”), claim 7 (device comprises “a volume reception unit for receiving a volume setting operation by a user”); EX-1002 ¶52.)

Accordingly, Kajiyama discloses or renders obvious a volume operating unit (e.g., volume reception unit VR 12) configured to output an operating value indicating a volume level of the audio (e.g., voltage value and/or corresponding volume setting value) according to a user operation. (EX-1002 ¶¶49-53.)

4. Element 1[c]: Lock Controller

Element 1[c] recites “a lock controller configured to switch between a non-locked state in which the volume level of the audio can be varied based on the operating value and a locked state in which the volume level of the audio is fixed by a constant lock value for the operating value.” Kajiyama discloses this limitation. (*Id.* ¶¶54-59.)

Kajiyama discloses that the device switches between a locked state and unlocked state based on whether “locking” or “unlocking operations are received[.]” (EX-1003 ¶[0031].) The device may be locked or unlocked by, for example, “pressing and holding specific buttons” on the UI 14. (*Id.*; EX-1002 ¶55.)

In the unlocked state, Kajiyama discloses that the audio output device’s volume level can be adjusted by the volume reception unit which, as discussed above, outputs a value indicating the volume level based on user operation. (*Supra* §VII.A.3; EX-1002 ¶56.)

When the audio output device receives a “locking operation” (also referred to as a “volume fixation operation”), the device switches from an unlocked state to a

locked state and “fixes” the volume at a constant value based on the volume level at the time when the volume fixation operation was received:

When a *locking operation* is received (s11, Yes), the control unit 11 stores the volume setting value indicated by the VR 12 at that time in the setting storage unit 15, and *fixes the volume of the output audio at this volume setting value (s12)*. In the example of FIG. 2 (A), since the volume setting value of the VR 12 indicates 2, the volume setting value 2 is stored in the setting storage unit 15 and the volume setting value set in the amplifier 18 is fixed at 2. Therefore, as illustrated in FIG. 2 (A), *even when the volume setting value of the VR 12 is subsequently changed to 3 or 4, the volume setting value set in the amplifier 18 is fixed at the volume setting value of 2 at the time of the locking operation.*

(EX-1003 ¶[0032] (emphases added); *see also id.* ¶[0012] (“[W]hen the volume fixation operation is received, the volume control unit maintains the volume of the output audio at the volume setting value at the time of the volume fixation operation[.]”), [0031], [0032], claim 7 (“when the volume fixation operation is received, the volume control unit maintains the volume of the output audio at a volume setting value at the time of the volume fixation operation, regardless of the volume setting operation received by the volume reception unit”); EX-1002 ¶57.)

Kajiyama discloses that a “volume control unit” receives the locking and unlocking operations and switches between the locked and unlocked states. (EX-1003 ¶[0012] (“when the volume fixation operation is received, the volume control unit maintains the volume”), [0031], [0032], [0044], [0045], claim 7; EX-1002 ¶58.)

Kajiyama therefore discloses or renders obvious a lock controller (e.g., volume control unit) configured to switch between a non-locked state in which the volume level of the audio can be varied based on the operating value (e.g., volume reception unit's value) and a locked state in which the volume level of the audio is fixed by a constant lock value for the operating value (e.g., the volume setting value at the time when the volume locking operation was received). (EX-1002 ¶¶54-59.)

5. Element 1[d]: Volume Controller

Element 1[d] recites “a volume controller configured to cause the audio output unit to output the audio having a volume level corresponding to the operating value in the non-locked state and to cause the audio output unit to output the audio having a volume level corresponding to the lock value in the locked state.” Kajiyama discloses or renders this limitation obvious. (*Id.* ¶¶60-62.)

As discussed above, Kajiyama discloses or renders obvious an audio device that outputs audio at a volume level corresponding to the volume reception unit's output value when unlocked. (*Supra* §VII.A.3.) And, when locked, the audio device outputs audio corresponding to the volume reception unit's output value at the time the device received a volume fixation operation (i.e., when it was locked). (*Supra* §VII.A.4.) Kajiyama's volume control unit controls this functionality. (*Id.*; EX-1002 ¶61.)

Accordingly, Kajiyama discloses or renders obvious a volume controller (e.g., volume control unit) configured to cause the audio output unit (e.g., amplifier or speaker) to output the audio having a volume level corresponding to the operating value (e.g., the volume reception unit's output value) in the non-locked state and to cause the audio output unit to output the audio having a volume level corresponding to the lock value (e.g., the volume reception unit's output value at the time the volume fixation operation was received) in the locked state. (EX-1002 ¶¶60-62.)

6. Element 1[e][i]: Unlocking

Element 1[e][i] recites that the lock controller is configured “to switch, when a predetermined operating part is turned on in the locked state, the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value and ends when the predetermined operating part is turned off.” Kajiyama discloses or renders obvious this limitation. (*Id.* ¶¶63-77.)

The '819 patent explains that an “operating part” may be a button or switch. (*See* EX-1001, 4:2-4 (“The monitor key 40 is a momentary switch that is turned on, for example, when the user depresses the switch and turned off when the user releases the switch.”), 6:25-26 (“the predetermined operating part is the monitor key 40 in the present example”); EX-1002 ¶64.) Turning an operating part on or off merely refers to operating a button or switch in a conventional manner such as by

pressing a button. (*Id.*) The '819 patent admits that the use of an operating part to lock and unlock the output volume of audio devices was known, as was returning volume to a desired level. (EX-1001, 1:19-24 (a “transceiver typically has a volume lock function that locks audio volume”), 1:25-28 (1995 Japanese patent “discloses an apparatus that automatically returns a volume key that has been inadvertently operated to a position”); EX-1002 ¶64.)

Kajiyama discloses switching from a locked to an unlocked state by pressing buttons on the audio device. (EX-1003 ¶¶[0022] (UI 14 is for receiving a volume fixation operation), [0031] (“The locking and unlocking operations are received, for example, by pressing and holding specific buttons simultaneously on the UI 14[.]”); EX-1002 ¶65.)

Kajiyama also discloses unlocking the audio device only when the volume is sufficiently adjusted (e.g., by operation of the volume reception unit) to match the locked volume level. (EX-1003 ¶¶[0013] (“even after the volume fix [lock] is released, the volume of the output audio is maintained as-is ... but when the hardware volume is operated and matches the volume of the output audio, the volume is changed in response to the volume setting value of the hardware volume”), [0044] (“[W]hen an unlocking operation is received ... the volume setting of the amplifier 18 remains fixed. When the VR 12 is operated ... the control unit 11 compares the volume setting value indicated by the VR 12 and the volume setting value stored in

the setting storage unit 15[], and when these volume setting values ... become identical (s26, No: not different), the volume setting value of the amplifier 18 is changed according to the volume setting value indicated by the VR 12.”), [0045], claim 7; EX-1002 ¶66.)

Kajiyama discloses that the unlocked state then ends, and the lock is re-set, when a volume locking operation is received, e.g., the buttons are pressed and held on the UI 14. (EX-1003 ¶[0031]; *supra* §VII.A.4; EX-1002 ¶67.)

Thus, Kajiyama discloses that its lock controller is configured to switch, when a predetermined operating part (e.g., locking/unlocking buttons) is turned on (pressed) in the locked state, the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value (e.g., matches the lock value) and ends when the predetermined operating part (locking/unlocking buttons) is turned off (are pressed again). (EX-1002 ¶¶63-68.) Accordingly, Kajiyama discloses this limitation.

To the extent PO argues that Kajiyama does not disclose this limitation because it discloses unlocking the volume when the operating value *matches* the lock value rather than being within a *predetermined range* of the lock value, that argument fails. Even if Kajiyama’s disclosure of *matching* required a precise or exact match, Kajiyama would still disclose the limitation because requiring a precise

match is setting a predetermined range with a lower limit equal to the lock value and an upper limit equal to the lock value. (*Id.* ¶69.)

Even if Kajiyama did not disclose this limitation, it would have been obvious to a POSITA in view of Kajiyama's disclosure because, although Kajiyama describes that the operating value and the lock value must match, Kajiyama does not explain how such matching is performed. (*See generally* EX-1003; EX-1002 ¶70.) It would have been obvious to a POSITA to perform Kajiyama's matching by comparing the volume reception unit's value to a range of values based on the stored lock value. (EX-1002 ¶70.) Specifically, a POSITA would have recognized that Kajiyama does not disclose an exact degree of precision required to match the values and that two options were available: requiring an exact match or using a range of values. (*Id.*) Thus, as one of two options, it would have been obvious to try implementing Kajiyama's system and unlocking the volume when the volume reception unit's value is within a predetermined range of the lock value. (*Id.*); *KSR*, 550 U.S. at 421.

A POSITA would have been motivated to implement design Kajiyama's system to allow unlocking when the volume dial is returned to within a predetermined range of the lock value for several reasons. (EX-1002 ¶¶71-77.) First, a POSITA would have understood that allowing for a reasonable degree of tolerance around the

lock value (e.g., 5% or 10%) achieves the disclosed “matching” requirement. (*Id.* ¶72.)

Second, a POSITA would have understood that implementing a range, rather than a precise match, would have improved the user experience by allowing the user to more easily unlock the volume without the need for exact precision. (*Id.* ¶73.)

Third, the purpose of Kajiyama’s “matching” requirement was intended to ensure that (1) volume changes were intended by the user and (2) sudden unlocking at high volumes would be avoided. (EX-1003 ¶¶[0004], [0013] (unlocking in this way makes it “possible to realize an appropriate change in volume that reflects the user’s intention in manipulating the volume, thereby reducing the sense of discomfort felt by the user”).) A POSITA would have understood that allowing the unlocking to occur when returning the volume dial to within a reasonable range of the lock value would achieve these same goals. (EX-1002 ¶74.)

Fourth, the proposed modification represents the simple substitution of one known element (a numerical range) for another known element (the precise lock value) to obtain predictable results (unlocking when the volume dial returns to within the predetermined range rather than to the precise numerical value). (*Id.* ¶75); *KSR*, 550 U.S. at 417.

Fifth, the combination applies a known technique (using a numerical range rather than a precise number) to a known device and method (a device that requires

a precise lock value) that is ready for improvement and yields predictable results (unlocking when the volume dial returns to within the predetermined range rather than to the precise numerical value). (*Id.*)

A POSITA would have reasonably expected success in allowing Kajiyama’s system to unlock when the volume reception unit’s value falls within a predetermined range of the lock value because this change would have been trivial. (EX-1002 ¶76.) Kajiyama explains that the unlocking occurs by comparing the volume setting indicated by the VR 12 to the lock value. (EX-1003 ¶[0044].) It would have been trivial to modify the comparison to check whether the volume setting is with a predetermined range of the lock value. (EX-1002 ¶76.)

Accordingly, to the extent Kajiyama does not expressly disclose this limitation, it renders the limitation obvious. (*Id.* ¶¶63-77.)

7. Element 1[e][ii]: Locking

Element 1[e][ii] recites that the lock controller is configured “to update the lock value with the operating value and switch the non-locked state to the locked state when the predetermined operating part is turned off after having switched to the non-locked state.” Kajiyama discloses or renders obvious this limitation. (EX-1002 ¶¶78-80.)

Kajiyama discloses that, in the unlocked state, a new lock value will be set when the device receives a “locking operation,” e.g., when the user again presses

buttons on UI 14. (*Supra* §VII.A.4; EX-1003 ¶[0032] (“When a locking operation is received ... the control unit 11 stores the volume setting value indicated by the VR 12 at that time ... and fixes the volume of the output audio at this volume setting value[.]”); EX-1002 ¶79.)

Thus, Kajiyama discloses or renders obvious that the lock controller (e.g., the control unit) is configured to update the lock value (e.g., the stored volume setting value) and switch the non-locked state to the locked state when the predetermined operating part is turned off (e.g., when the buttons are pressed) after having switched to the non-locked state. (EX-1002 ¶¶78-80.)

Accordingly, Kajiyama discloses and/or renders obvious every limitation of claim 1, and claim 1 as a whole would have been obvious. (*Id.* ¶¶44-81.)

B. Claim 2

Claim 2 depends from claim 1 and further recites that “when the predetermined operating part is turned on in the locked state, the lock controller is further configured to maintain the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.”

As discussed above, when Kajiyama’s device is in the locked state and the predetermined operating part is turned on (e.g., “an unlocking operation is received”), the volume remains locked until the volume reception unit’s value matches

the lock value. (*Supra* §§VII.A.4-VII.A.6; EX-1002 ¶¶83.) And, it would have been obvious to modify Kajiyama to unlock when the volume reception unit's value is within a predetermined range of the lock value. (*Id.*)

Accordingly, Kajiyama discloses or renders obvious a receiving apparatus (e.g., Kajiyama's audio output device), wherein, when the predetermined operating part (e.g., a button of the volume fixation operation reception unit) is turned on (e.g., the button is pressed) in the locked state, the lock controller (e.g., control unit) is further configured to maintain the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value (e.g., the volume reception unit's value) becomes a value that falls within the predetermined range based on the lock value (e.g., a predetermined range based on the volume reception unit's value at the time when the volume fixation operation was received). (*Supra* §VII.A; EX-1002 ¶¶84.)

Thus, Kajiyama discloses and/or renders obvious every limitation of claim 2, and claim 2 as a whole would have been obvious. (EX-1002 ¶¶82-85.)

C. Claim 4

Claim 4 depends from claim 1 and further recites that “the predetermined range based on the lock value ranges from a lock value obtained by subtracting a predetermined first value from the lock value to a lock value obtained by adding a predetermined second value to the lock value.”

As discussed above, Kajiyama discloses this limitation because, even if Kajiyama's "matching" requirement is understood to require a precise match, the predetermined range ranges from subtracting zero (a first value) from the lock value to adding zero (a second value) to the lock value. (*Supra* §VII.A.6; EX-1002 ¶87.) Alternatively, even if Kajiyama does not expressly disclose this limitation, Kajiyama renders obvious a predetermined range based on the lock value (e.g., near the volume reception unit's value at the time when the volume fixation operation is received). (*Id.*) And, it would have been obvious to determine such a range using basic arithmetic by adding and subtracting desired values from the locked level to establish upper and lower bounds of the range, respectively. (EX-1002 ¶87.) Indeed, using addition and subtraction would have been the simplest way to calculate such a range. (*Id.*)

Thus, Kajiyama discloses and/or renders obvious every limitation of claim 4, and claim 4 as a whole would have been obvious. (*Id.* ¶¶86-88.)

D. Claim 5

Claim 5 depends from claim 1 and further recites that "the predetermined range is a range covering values smaller than the lock value."

As discussed above with respect to claim 4, Kajiyama renders obvious a predetermined range wherein the range's lower limit is obtained by subtracting a desired value from the lock value. (*Supra* §VII.C; EX-1002 ¶90.) The predetermined range

would therefore include “values smaller than the lock value,” as recited in claim 5. (*Id.*) Thus, Kajiyama discloses and/or renders obvious every limitation of claim 5, and claim 5 as a whole would have been obvious. (EX-1002 ¶¶89-91.)

E. Claim 7

Claim 7 depends from claim 1 and further recites that “the volume controller includes a mechanical operating device.” The ’819 patent explains that this “mechanical operating device” may be a conventional volume knob, i.e., a “rotary variable resistor in which the position of a rotary shaft represents the volume level.” (EX-1001, 3:49-60; EX-1002 ¶93.)

Kajiyama discloses that the volume reception unit “VR 12 is a rotary knob that outputs a voltage value according to the rotation angle” and that the output voltage value is “converted into a digital value” by an analog-to-digital converter.” (EX-1003 ¶[0028].) A POSITA would have understood that such a rotary knob would include conventional components such as a rotary variable resistor to convert the mechanical rotary movement into an electrical signal indicating the desired audio output level. (EX-1002 ¶94.) Accordingly, Kajiyama discloses or renders obvious a mechanical operating device as recited in claim 7. (*Id.*) Thus, Kajiyama discloses and/or renders obvious every limitation of claim 7, and claim 7 as a whole would have been obvious. (EX-1002 ¶¶92-95.)

F. Claim 8

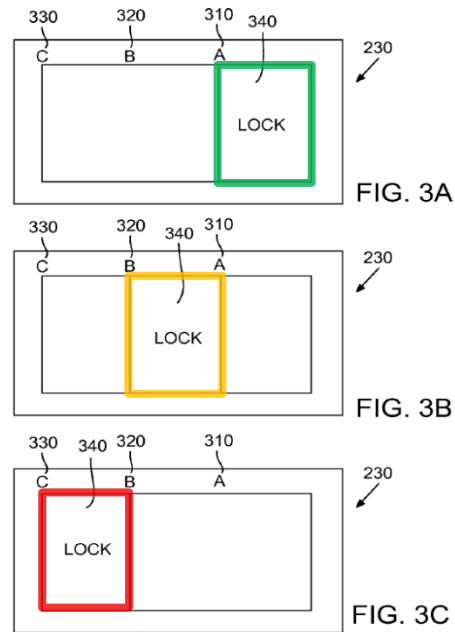
Claim 8 recites a method claim for performing the same limitations as the apparatus of claim 1. (EX-1002 ¶¶97.) Accordingly, Kajiyama discloses or renders obvious claim 8 for the reasons discussed above for claim 1. (*Supra* §VII.A; EX-1002 ¶¶96-98.)

VIII. GROUND 1B: CLAIMS 1-2, 4-5, AND 7-8 WOULD HAVE BEEN OBVIOUS IN VIEW OF KAJIYAMA AND NELSON.

Claims 1-2, 4-5, and 7-8 would have been obvious over Kajiyama alone as discussed in Ground 1A above. These claims also would have been obvious over Kajiyama in view of Nelson, as set forth below. Petitioners incorporate the discussion of Kajiyama from Ground 1A and discuss here only the claim elements for which Nelson is relevant.

Nelson discloses that media players may use a “locking mechanism that causes the player to ignore or otherwise not receive any input commands normally received via external input controls” to “eliminate[] the receipt of inadvertent inputs that affect the playback of the player[.]” (EX-1005, 1:29-38; *id.*, 3:54-4:55.) Nelson’s locking mechanism may be “buttons, sliding mechanisms, soft-keys, and so on” used to lock and unlock the media player. (*Id.*, 4:55-57; EX-1002 ¶¶100.)

Figures 3A-3C illustrate Nelson’s locking mechanism embodied as a sliding mechanism:



(EX-1005, Figs. 3A-3C; *id.*, 4:57-67; EX-1002 ¶101.) Moving the mechanism’s lock to **position A**, as shown in Fig. 3A, “plac[es] the player in an **unlocked state**” while moving the lock to **position C**, as shown in FIG. 3C, “plac[es] the player in a **fully-locked state** 330 where all input controls are disabled.” (EX-1005, 4:57-67 (emphasis added).) A POSITA would have therefore recognized Nelson’s locking mechanism as a predetermined operating part, as recited in claim 1, used to lock and unlock the media player. (EX-1002 ¶101.) A POSITA also would have understood that the predetermined part is ON in Figure 3A (in the unlocked position) and OFF in Figure 3C (in the locked position). (*Id.*)

A. Claim 1

1. Element 1[e][i]: Locking

Element 1[e][i] recites that the lock controller is configured “to switch, *when a predetermined operating part is turned on in the locked state*, the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value *and ends when the predetermined operating part is turned off.*” To the extent PO argues that Kajiyama does not disclose or render obvious the “predetermined operating part” limitations of this claim element, Nelson discloses those limitations. (EX-1002 ¶103.) Specifically, Nelson discloses that the device switches from the locked state to the unlocked state when a predetermined operating part (Nelson’s sliding mechanism) is turned on (to position A) and switches back to the locked state when the predetermined operating part (sliding mechanism) is turned off (to position C). (*Id.*)

For the reasons discussed below, a POSITA would have been motivated to combine the teachings of Kajiyama and Nelson, and to implement Kajiyama’s lock/unlock functionality with Nelson’s sliding mechanism (rather than requiring the button presses described in Kajiyama), and would have had a reasonable expectation of success in doing so. (*Infra* §VIII.A.3.) The Kajiyama-Nelson combination therefore renders obvious switching, when a predetermined operating part is turned

on in the locked state (e.g., when Nelson’s sliding mechanism is moved from position C to position A), the locked state to the non-locked state (e.g., unlocking Kajiyama’s device) for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value (e.g., when Kajiyama’s volume control knob’s value matches or is within a predetermined range of the locked level) and ends when the predetermined operating part is turned off (e.g., when Nelson’s sliding mechanism is moved back to position C). (EX-1002 ¶¶102-05.)

2. Element 1[e][ii]: Unlocking

Element 1[e][ii] recites that the lock controller is configured “to update the lock value with the operating value and switch the non-locked state to the locked state when the predetermined operating part is turned off after having switched to the non-locked state.” Kajiyama and Nelson disclose or render obvious this limitation. (EX-1002 ¶¶106-09.)

Kajiyama discloses that, after unlocking, the lock controller can update the lock value with a new value and switch from the non-locked state to the locked state using Kajiyama’s “locking operation,” which may include pressing and holding certain buttons, to re-lock the volume. (*Supra* §VII.A.6; EX-1002 ¶107.) Kajiyama discloses that, when the receiver is so locked, the output volume level is set at the then-current value of the volume control knob. (*Supra* §VII.A.7; EX-1002 ¶107.)

Nelson discloses updating the lock value with the new operating value (e.g., adjusting volume based on volume controls), and switching from the non-locked state to the locked state, when the predetermined operating part (e.g., sliding mechanism) is turned off (moved to position C) after having switched to the non-locked state (position A). (*Supra* §VIII.A.1; EX-1002 ¶108.)

Thus, Kajiyama and Nelson together disclose and render obvious this limitation. Specifically, they disclose or renders obvious updating the lock value with the operating value (e.g., Kajiyama’s volume control knob’s value) and switching the non-locked state to the locked state when the predetermined operating part (e.g., Nelson’s sliding mechanism) is turned off (e.g., moved to position C) after having switched to the non-locked state (e.g., position A). (EX-1002 ¶¶106-09.)

3. Motivation to Combine

A POSITA would have been motivated to combine the teachings of Kajiyama and Nelson, and to use Nelson’s sliding mechanism in Kajiyama’s device, for several reasons. (*Id.* ¶¶110-15.)

First, Kajiyama discloses the need to lock and unlock the receiver using “locking and unlocking operations,” but the only example it provides “pressing and holding specific buttons simultaneously on the UI 14[.]” (EX-1003 ¶[0031]; EX-1002 ¶111.) Thus, a POSITA would have been motivated to look to other references, such

as Nelson, for simpler locking mechanisms, such as switches, sliders, and buttons.
(EX-1002 ¶111.)

Second, Kajiyama discloses the advantage of locking the receiver, including ensuring that any volume changes reflect the user’s intent and reduce the “discomfort” of unlocking the volume when the volume is set higher than expected. (EX-1003 ¶[0013]; EX-1002 ¶112.) Nelson explains that its simple locking mechanism provides such functionality. (EX-1005, 4:50-67; EX-1002 ¶112.) Thus, a POSITA would have been motivated to implement Kajiyama’s locking and unlocking functionality using a simple button or sliding mechanism (as taught by Nelson) to simplify the locking and unlocking process, thereby improving the ease of use of Kajiyama’s receiver. (EX-1002 ¶112.)

Third, the combination represents nothing more than the simple addition of a known element (Nelson’s sliding mechanism) to another known element (Kajiyama’s receiver) to obtain the predictable result of locking and unlocking the receiver using a switch. (*Id.* ¶113); *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (Nelson’s sliding mechanism) to improve a similar device and method (Kajiyama’s receiver and locking functionality) in the same way. (*Id.*)

Fifth, the combination merely applies a known technique (Nelson’s simple sliding mechanism) to a known device and method (Kajiyama’s receiver and locking

functionality) that is ready for improvement and yields predictable results (locking and unlocking Kajiyama’s receiver using an ON-OFF sliding mechanism). (*Id.*)

A POSITA would have reasonably expected success in using Nelson’s locking mechanism in Kajiyama’s receiver because simple locking mechanisms such as Nelson’s were well understood and routinely used in a wide variety of electronic devices. (EX-1002 ¶114.) Additionally, a POSITA would have recognized that Nelson’s switch could easily be added in the available space on the top of Kajiyama’s receiver. (*Id.*) And, as discussed above, such a combination reflects nothing more than using Nelson’s locking mechanism in a conventional manner. (*Id.*)

Thus, Kajiyama and Nelson disclose or render obvious each element of claim 1, and claim 1 as a whole would have been obvious to a POSITA. (*Id.* ¶¶102-15.)

B. Claim 2

Claim 2 depends from claim 1 and further recites that “when the predetermined operating part is turned on in the locked state, the lock controller is further configured to maintain the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.”

As discussed above, Kajiyama renders obvious this limitation. (*Supra* §VII.B.) In the proposed Kajiyama-Nelson combination, when the volume is locked and the slider is moved to position A to unlock the volume, the volume would not

immediately unlock at the volume set by the knob. (EX-1002 ¶117.) Rather, the volume would only be unlocked when the slider is moved to position A *and* the volume knob is within a predetermined range of the volume at which it was previously locked. (*Supra* §VIII.A.1; EX-1002 ¶117.) Thus, Kajiyama and Nelson together render obvious that, when the predetermined operating part (e.g., sliding mechanism) is turned on (e.g., to position A) in the locked state, the lock controller maintains the locked state for a period of time that starts when the predetermined operating part is turned on (e.g., sliding mechanism is switched to position A) and ends when the operating value (e.g., volume control knob's value) falls within the predetermined range based on the lock value (e.g., at or near the locked level). (*Id.*) Accordingly, claim 2 would have been obvious over Kajiyama and Nelson for the reasons discussed above. (EX-1002 ¶¶116-18)

C. Claims 4-5 and 7

Claims 4-5 and 7 depend from claim 1. As discussed above, Kajiyama discloses or renders obvious the additional limitations of claims 4-5 and 7. (*Supra* §§VII.A.C-VII.A.E.) Accordingly, Kajiyama and Nelson render obvious claims 4-5 and 7 for the reasons discussed above. (EX-1002 ¶119.)

D. Claim 8

Claim 8 recites a method claim for performing the same limitations as the apparatus of claim 1. (EX-1002 ¶120.) Accordingly, Kajiyama and Nelson render

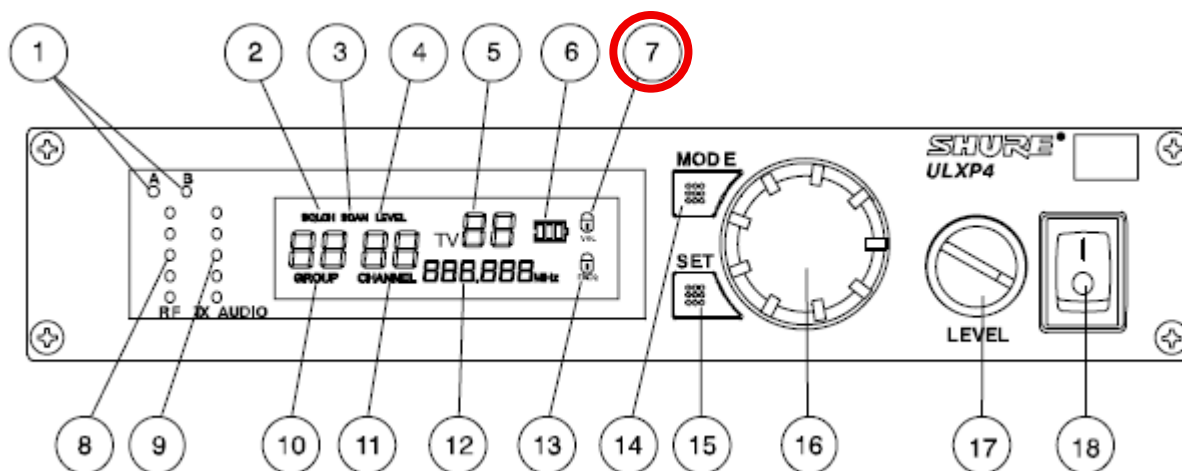
obvious claim 8 for the reasons discussed above for claim 1. (*Supra* §§VII.A, VIII.A; EX-1002 ¶120.)

Accordingly, Kajiyama and Nelson render obvious claims 1-2, 4-5, and 7-8. (EX-1002 ¶¶99-120.)

IX. GROUND 1C: CLAIM 3 WOULD HAVE BEEN OBVIOUS IN VIEW OF GROUNDS 1A OR 1B AND SHURE.

Claim 3 depends from claim 2 and further recites that “when the predetermined operating part is turned on in the locked state, the lock controller is further configured to display information indicating the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.” As discussed, claim 2 would have been obvious over Kajiyama alone (as in Ground 1A) or in combination with Nelson (as in Ground 1B). (*Supra* §§VII.B, VIII.B.) Petitioners incorporate the discussion of Kajiyama from Ground 1A and the Kajiyama-Nelson combination from Ground 1B. Claim 3 would have been obvious in further view of Shure. (EX-1002 ¶¶121-29.)

Shure discloses a “volume lock indicator” which “[a]ppears after the Volume level setting has been locked” and a “Volume Level warning indicator [that] will flash on the receiver display” “[i]f the volume control knob has been set to a level higher than the locked level.” (EX-1004, 5, 18.) The figure below depicts Shure’s volume lock indicator (7):



(*Id.*, Fig. 3; EX-1002 ¶122.)

As discussed above, Kajiyama, either alone or with Nelson, discloses and renders obvious maintaining the locked state after the predetermined operating part is turned on (e.g., Kajiyama’s buttons are pressed and held or Nelson’s slider is moved to the unlock position) until the volume control knob’s value falls within a predetermined range based on the locked level. (*Supra* §§VII.A.6, VIII.A.1; EX-1002 ¶123.) Shure teaches that, once the volume control knob’s value falls within an appropriate range, the “Volume Level warning indicator stops flashing.” (EX-1004, 18; EX-1002 ¶123.)

It would have been obvious to a POSITA to modify Kajiyama’s receiver to include, on the “top surface of the housing” or on UI 14, a “volume lock indicator” which “[a]ppears after the Volume level setting has been locked” and a “Volume Level warning indicator [that] will flash on the receiver display” “[i]f the volume control knob has been set to a level higher than the locked level,” as taught by Shure.

(EX-1002 ¶124.) A POSITA would have been motivated to do so for several reasons. (*Id.* ¶¶124-29.)

First, Kajiyama discloses a “user interface” 14 for “receiving various operations such as content selection, a volume fixation operation, and a power on/off operation.” (EX-1003 ¶[0022].) And while Kajiyama discloses a locking mechanism and an unlocking mechanism similar to that described in Shure (*see infra* §§X.A.6-X.A.7), Kajiyama discloses no way of providing the user with feedback indicating that the volume is still locked. A POSITA would have immediately recognized that such an indication would be beneficial. (EX-1002 ¶125.)

Second, the combination represents nothing more than the simple addition of a known element (Shure’s volume lock indicator and volume level warning indicator) to another known element (Kajiyama’s receiver) to obtain the predictable result of indicating to a user when the volume is locked or the volume level exceeds the lock value. (*Id.* ¶126); *KSR*, 550 U.S. at 417.

Third, the combination uses a known technique (Shure’s indicators) to improve a similar device and method (Kajiyama’s receiver) in the same way (to provide helpful indications to users). (*Id.*)

Fourth, the combination merely applies a known technique (indicators) to a known device and method (Kajiyama’s receiver and UI) that is ready for improvement and yields predictable results (providing beneficial indicators to users). (*Id.*)

A POSITA would have reasonably expected success in using Shure’s volume lock indicator in Kajiyama’s device because simple displays and status indicators such as Shure’s volume lock indicator were well understood and routinely used in a wide variety of electronic devices. (EX-1002 ¶127.) For example, electronic devices routinely included displays that indicate information about the device (e.g., on/off, volume level, battery level, current audio track, etc.). (*Id.*) Additionally, a POSITA would have understood that a display and volume lock indicator could easily be added to the top surface or UI 14 of Kajiyama by simply adding a conventional display. (*Id.*) And, as discussed above, this combination reflects nothing more than using Shure’s volume lock indicator in a conventional manner (to indicate whether the device’s volume is locked). (*Id.*)

Accordingly, Shure in combination with either Kajiyama (as in Ground 1A) or Kajiyama and Nelson (as in Ground 1B) render obvious displaying information indicating the locked state (e.g., the volume lock indicator and Volume Level warning indicator) for a period of time that starts when the predetermined operating part is turned on and ends when the operating value (e.g., volume control knob’s value) becomes a value that falls within the predetermined range based on the lock value. (*Id.* ¶¶121-29.)

Thus, Kajiyama, Shure, and optionally Nelson (as in Ground 1B), disclose or render obvious every limitation of claim 3, and the claim as whole would have been obvious. (*Id.*)

X. GROUND 2A: CLAIMS 1-5 AND 7-8 WOULD HAVE BEEN OBVIOUS IN VIEW OF SHURE AND NELSON.

Shure discloses a wireless audio system consisting of an audio transmitter and an audio receiver. (EX-1004, 3, Fig. 1.) The receiver includes a dial for adjusting the receiver volume output level. (*Id.*, 5.) The receiver may be locked “to prevent unauthorized or accidental changes to the settings,” including the volume output level. (*Id.*, 18; EX-1002 ¶130.)

A. Claim 1

1. Preamble

The preamble recites “[a] receiving apparatus.” Shure discloses a wireless audio system, including an audio receiver, as shown in Figure 1:

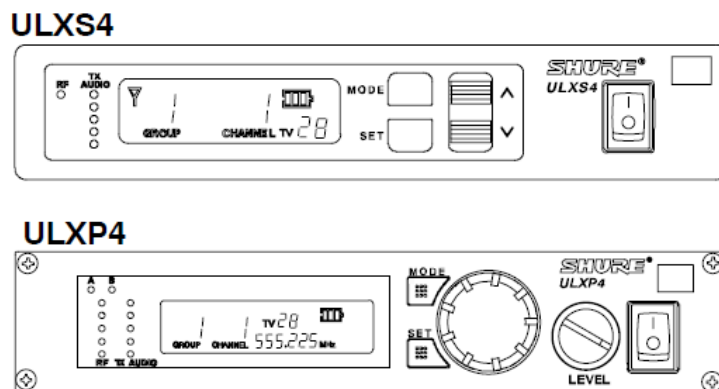


FIGURE 1

(EX-1004, Fig. 1; *id.*, 3 (“Each Shure ULX® Wireless System includes ... a

“ULXS4 Standard Diversity Receiver or a ULXP4 Professional Diversity Receiver[.]”); EX-1002 ¶131.) Accordingly, Shure discloses the preamble. (EX-1002 ¶131.)

2. Element 1[a]: Audio Output Unit

Element 1[a] recites “an audio output unit configured to output audio corresponding to an audio signal.” Shure discloses or renders obvious this limitation. (EX-1002 ¶¶132-34.)

Shure discloses an audio receiver with multiple “output connectors” which provide an audio output. (EX-1004, 5, Fig. 3; EX-1002 ¶133.) As shown in Figure 6, the receiver outputs audio signals:

3. Connect audio cable(s) (not supplied) from the audio output(s) to the audio input(s) of your audio system, mixer and/or amplifier, as shown in Figure 6.

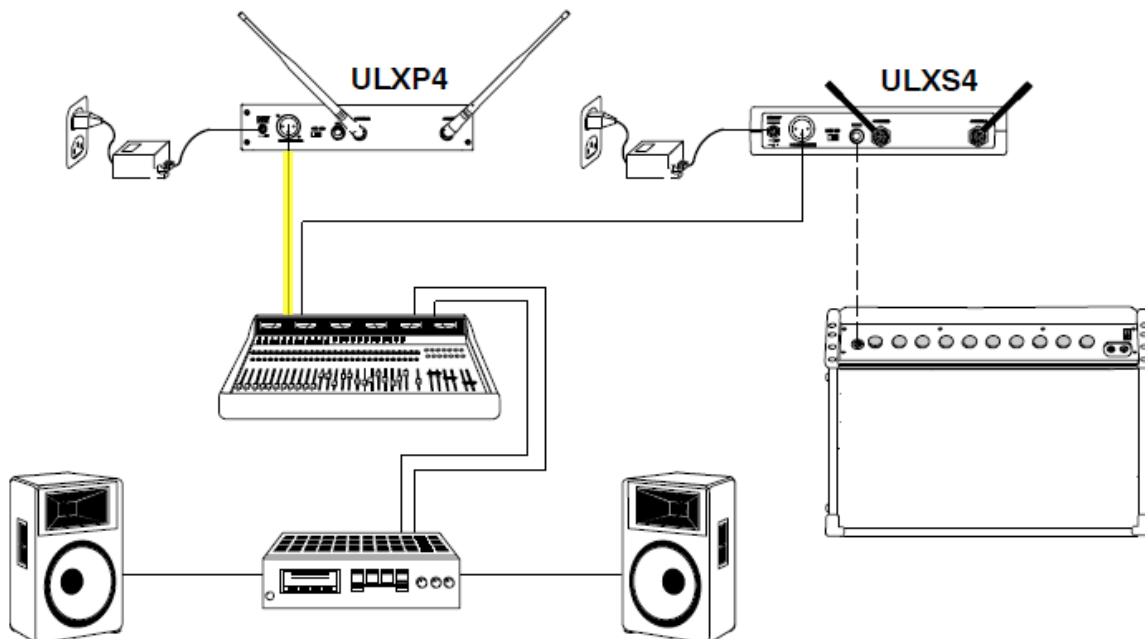


FIGURE 6

(EX-1004, 6, Fig. 6; EX-1002 ¶133.) And, the audio output from the audio outputs

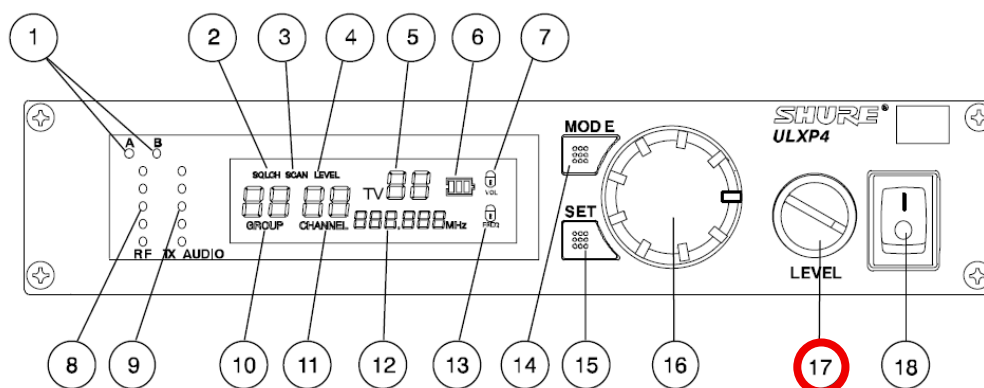
corresponds to an audio signal received from an audio transmitter such as a microphone. (See EX-1004, 3 (each Shure system includes a microphone transmitter and a receiver), 5 (receiver receives audio signals using receiving antennas); EX-1002 ¶133.)

Accordingly, Shure discloses or renders obvious an audio output unit (e.g., output connector) configured to output audio corresponding to an audio signal (e.g., audio signal received from a microphone). (EX-1002 ¶¶132-34.)

3. Element 1[b]: Volume Operating Unit

Element 1[b] recites “a volume operating unit configured to output an operating value indicating a volume level of the audio according to a user operation.” Shure discloses or renders obvious this limitation. (EX-1002 ¶¶135-39.) The ’819 patent admits this element was known. (EX-1001, 1:19-28 (disclosing prior art devices with a “volume key” that adjusts volume); EX-1002 ¶136.)

Shure discloses an audio receiver with a volume level control knob (17), as shown in Figure 3:



(EX-1004, Fig. 3; *id.*, 5; EX-1002 ¶137.)

The level control, also referred to as a “Volume control knob,” “[a]djusts the receiver audio output level[.]” (EX-1004, 5; EX-1002 ¶138.) Thus, a user can adjust the audio output level using the level control. (*Id.*) And, a POSITA would have understood that the “audio output level” is “an operating value indicating a volume level of the audio” as recited in element 1[b]. (EX-1002 ¶138.)

Accordingly, Shure discloses or renders obvious a volume operating unit (e.g., level control/volume control knob) configured to output an operating value indicating a volume level of the audio (e.g., audio output level) according to a user operation. (*Id.* ¶¶135-39.)

4. Element 1[c]: Lock Controller

Element 1[c] recites “a lock controller configured to switch between a non-locked state in which the volume level of the audio can be varied based on the operating value and a locked state in which the volume level of the audio is fixed by a constant lock value for the operating value.” Shure discloses or renders this limitation obvious. (EX-1002 ¶¶140-44.)

Shure discloses that a user “can lock the ... output level to prevent unauthorized or accidental changes to the settings.” (EX-1004, 18; *see also id.*, 5 (disclosing a “volume lock indicator” which “[a]ppears after the Volume level setting has been locked”).) Because Shure’s volume lock prevents changes in volume, a POSITA would have understood that the volume level is fixed by a constant lock value (e.g.,

the audio output level when the receiver is locked). (EX-1002 ¶141.) Moreover, the '819 patent admits such volume locks were known. (EX-1001, 1:18-20 (a portable transceiver “typically has a volume lock function that locks audio volume”); EX-1002 ¶141.)

Shure also discloses that the output level setting may be unlocked. (EX-1004, 18 (disclosing unlocking to adjust “output level settings”); EX-1002 ¶142.) Thus, Shure discloses switching between a locked and an unlocked state. (EX-1002 ¶142.) And, when unlocked, the output level can be changed using the volume control knob. (*Supra* §X.A.3; EX-1002 ¶142.)

Shure therefore discloses or renders obvious switching between a non-locked state in which the volume level of the audio can be varied based on the operating value (e.g., volume control knob value) and a locked state in which the volume level of the audio is fixed by a constant lock value for the operating value (e.g., the audio output level when the receiver is locked). (EX-1002 ¶143.) Further, a POSITA would have understood that Shure’s receiver necessarily includes a “controller” such as a microcontroller and related circuitry to control its locking functionality. (*Id.* ¶144.) Accordingly, Shure discloses or renders obvious element 1[c]. (*Id.* ¶¶140-44.)

5. Element 1[d]: Volume Controller

Element 1[d] recites “a volume controller configured to cause the audio output unit to output the audio having a volume level corresponding to the operating value in the non-locked state and to cause the audio output unit to output the audio having a volume level corresponding to the lock value in the locked state.” Shure discloses or renders this limitation obvious. (EX-1002 ¶¶145-48.)

As discussed above with respect to elements 1[b] and 1[c], Shure discloses or renders obvious an audio receiver with a volume operating unit and a volume lock controller. (*Supra* §§X.A.3-X.A.4.) When unlocked, the audio output level corresponds to the volume control knob’s value. (*Supra* §X.A.3.) When locked, the audio output level corresponds to the volume control knob’s value when the receiver was locked. (*Supra* §X.A.4.) Shure inherently discloses the recited “volume controller” because such a controller would have been necessary for Shure’s receiver to operate as described. (EX-1002 ¶146.)

Even if the recited volume controller was not inherently disclosed by Shure, it would have been obvious. PO contends that a volume controller is nothing more than conventional circuitry that controls the audio output level based on input values. (*See* EX-1011 (Complaint), ¶106 (“volume controller (e.g., ‘power and speaker driver board’ and ‘motherboard’)”); EX-1002 ¶147.) Including conventional cir-

cuitry such as a microcontroller and well-known mechanical and electrical components to control the audio output level would have been obvious to a POSITA and represents nothing more than the use of conventional and well-known components for their intended purpose. (EX-1002 ¶147.)

Accordingly, Shure discloses or renders obvious a volume controller (e.g., microcontroller) configured to cause the audio output unit (e.g., output connector) to output the audio having a volume level corresponding to the operating value (e.g., volume control knob's value) in the non-locked state and to cause the audio output unit to output the audio having a volume level corresponding to the lock value (e.g., volume control knob's value when the receiver was locked) in the locked state. (*Id.* ¶¶145-48.)

6. Element 1[e][i]: Unlocking

Element 1[e][i] recites that the lock controller is configured “to switch, when a predetermined operating part is turned on in the locked state, the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value and ends when the predetermined operating part is turned off.” Shure and Nelson render this limitation obvious. (EX-1002 ¶¶149-59.)

As discussed above, the '819 patent admits that: (1) an “operating part” is a button or switch; (2) turning an operating part on or off is simply operating it in a

conventional manner such as by pressing a button; (3) such use of an operating part to lock and unlock the volume of audio devices was known; and (4) returning volume to a desired level was known. (*Supra* §VII.A.6; EX-1002 ¶150.)

Shure discloses switching between the locked and unlocked states by a series of button pushes on the user interface. (EX-1002 ¶151.) To switch from the unlocked state to the locked state, the user “hold[s] down the receiver SET button and press[es] the MODE button three times.” (EX-1004, 18; EX-1002 ¶151.) To switch from the locked state to the unlocked state, the user “hold[s] down the SET button and rotat[es] the control knob one quarter turn left-right-left.” (*Id.*) However, the receiver will remain locked if “the volume control knob has been set to a level higher than the locked level.” (*Id.*) The volume control knob must be turned down to unlock the receiver. (EX-1004, 18 (“Rotate the volume control knob counterclockwise until the Volume Level warning indicator stops flashing. This will unlock the output level setting.”); EX-1002 ¶151.)

Shure does not describe what level the user must turn the volume level to in order to unlock the receiver. However, a POSITA reading Shure would have understood that there are a finite number of options for the return level required to unlock the receiver. (EX-1002 ¶152.) One option would be to unlock the volume as long as the volume level is adjusted down to a predetermined level (e.g., 50% volume). (*Id.*) A second option would be to unlock the volume when the volume level is

adjusted back to the lock value. (*Id.*) A third option would be to unlock the volume when the volume level is adjusted to be within a range of the lock value (e.g., plus or minus 10% of the locked volume). (*Id.*)

Implementing Shure’s volume unlocking with the third option, as claimed, would have been obvious for many reasons. (*Id.* ¶¶152-56.)

First, as one of a finite number of options, it would have been obvious to try. (*Id.* ¶153); *KSR*, 550 U.S. at 421.

Second, a POSITA would not have been motivated to choose the first option because it would result in either loud spikes or large reductions in volume. (EX-1002 ¶154.) Take, for example, a system that will unlock the volume as long as the volume is at or below 50%. (*Id.*) If a user locks this system at a volume of 15%, there would be a significant jump in volume when the user unlocks the volume with the volume control adjusted to 50%. (*Id.*) As another example, the system could be designed to unlock the volume as long as the volume is at or below 15%. (*Id.*) If a user locks the volume at 50%, the user must adjust the volume down to 15% to unlock the volume which will cause a significant reduction in volume. (*Id.*) Thus, a POSITA would not have been motivated to implement a predetermined value to unlock the volume as it could result in either loud spikes or large reductions in volume, which is undesirable for the user. (*Id.*)

Between the remaining two options, a POSITA would have been motivated to choose the second option. (*Id.* ¶155.) A POSITA would have understood that adjusting the volume within a range of the lock value (e.g. 10% of the lock value) would accomplish the goal of preventing the volume from unreasonably spiking. (*Id.*) Moreover, this option would require a less precise adjustment from the user, as it would allow the system to unlock as long as the volume level is close to the locked level. (*Id.*) Thus, the system would be easier for the user to use. (*Id.*)

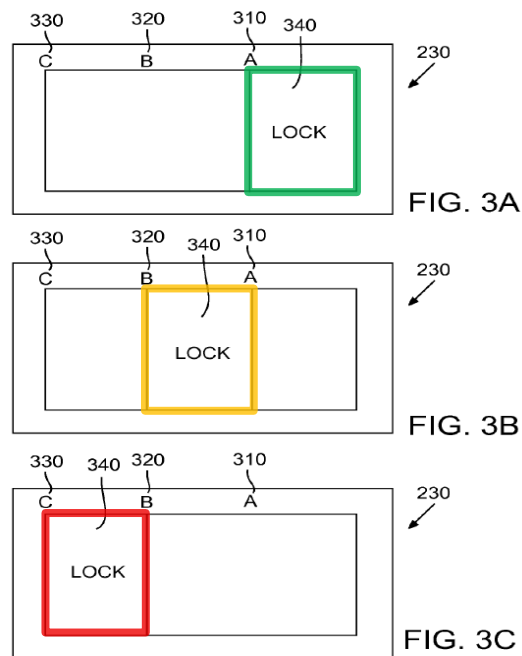
Accordingly, Shure renders obvious switching, when a predetermined operating part is turned on in the locked state (e.g., when the SET button is pressed and the receiver is locked), the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value (e.g., when the volume control knob's value is within a range based on the lock level) and ends when the predetermined operating part is turned off (e.g., when the SET button is pressed again). (*Id.* ¶¶149-55.)

To the extent PO argues that Shure does not disclose the claimed “predetermined operating part,” this feature is taught by Nelson and element 1[e][i] would have been obvious over Shure in view of Nelson. (*Id.* ¶¶157-59.) As previously discussed, Nelson discloses that many media players use a “locking mechanism that causes the player to ignore or otherwise not receive any input commands normally received via external input controls” to “eliminate[] the receipt of inadvertent inputs

that affect the playback of the player.” (EX-1005, 1:29-38; *see also id.*, 3:54-4:55.)

Nelson’s locking mechanism may be “buttons, sliding mechanisms, soft-keys, and so on” used to lock and unlock the media player. (*Id.*, 4:55-57; EX-1002 ¶157.)

Figures 3A-3C illustrate Nelson’s locking mechanism embodied as a sliding mechanism:



(EX-1005, Figs. 3A-3C; *id.*, 4:57-67; EX-1002 ¶158.) As discussed, moving the locking mechanism’s lock to **position A**, as shown in Figure 3A, places the player in an “unlocked state” while moving the lock to **position C**, as shown in Figure 3C, places the player in a “fully-locked state 330 where all input controls are disabled.” (*Id.*) A POSITA would have therefore recognized Nelson’s locking mechanism as a predetermined operating part, as recited in claim 1, used to lock and unlock the media player. (EX-1002 ¶158.)

For the reasons discussed below, a POSITA would have been motivated to combine the teachings of Shure and Nelson to implement Shure’s lock/unlock functionality with Nelson’s sliding mechanism, and would have had a reasonable expectation of success in doing so. (*Infra* §X.A.8.) The Shure-Nelson combination therefore renders obvious switching, when a predetermined operating part is turned on in the locked state (e.g., when Nelson’s sliding mechanism is moved from position C to position A), the locked state to the non-locked state (e.g., unlocking Shure’s receiver) for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value (e.g., when Shure’s volume control knob’s value is within a predetermined range of the locked level) and ends when the predetermined operating part is turned off (e.g., when Nelson’s sliding mechanism is moved back to position C). (EX-1002 ¶¶149-59.)

7. Element 1[e][ii]: Locking

Element 1[e][ii] recites that the lock controller is configured “to update the lock value with the operating value and switch the non-locked state to the locked state when the predetermined operating part is turned off after having switched to the non-locked state.” Shure and Nelson render obvious this limitation. (EX-1002 ¶¶160-63.)

Shure discloses that, after unlocking, the lock controller can update the lock value with a new operating value and switch the non-locked state to the locked state

by operating Shure’s SET button to re-lock the volume. (*Supra* §§X.A.4, X.A.6; EX-1002 ¶161.) Shure discloses that, when the receiver is so locked, the output volume level is set at the then-current value of the volume control knob, the “locked level,” and cannot be changed until the receiver is unlocked. (EX-1004, 18; EX-1002 ¶161.)

Nelson discloses updating the lock value with the new operating value, and switching from the non-locked state to the locked state, when the predetermined operating part (e.g., sliding mechanism) is turned off (moved to position C) after having switched to the non-locked state (position A). (*Supra* §X.A.6; EX-1002 ¶162.)

Thus, Shure and Nelson together disclose or render obvious this limitation. Specifically, they disclose or render obvious updating the lock value (e.g., locked level) with the operating value (e.g., Shure’s volume control knob’s value) and switching the non-locked state to the locked state when the predetermined operating part (e.g., Nelson’s locking mechanism) is turned off (e.g., moved to position C) after having switched to the non-locked state (e.g., position A). (EX-1002 ¶¶160-63.)

8. Motivation to Combine

A POSITA would have been motivated to combine the teachings of Shure and Nelson, and to use Nelson’s locking mechanism in Shure’s receiver, for several reasons. (*Id.* ¶¶164-69.)

First, Shure discloses the need to lock and unlock the receiver but uses a complex locking and unlocking process that involves holding down one button while simultaneously pressing another button repeatedly or rotating a knob back and forth several times. (EX-1004, 18; EX-1002 ¶165.) Thus, a POSITA would have been motivated to look to other references, such as Nelson, for simpler locking mechanisms. (*Id.*)

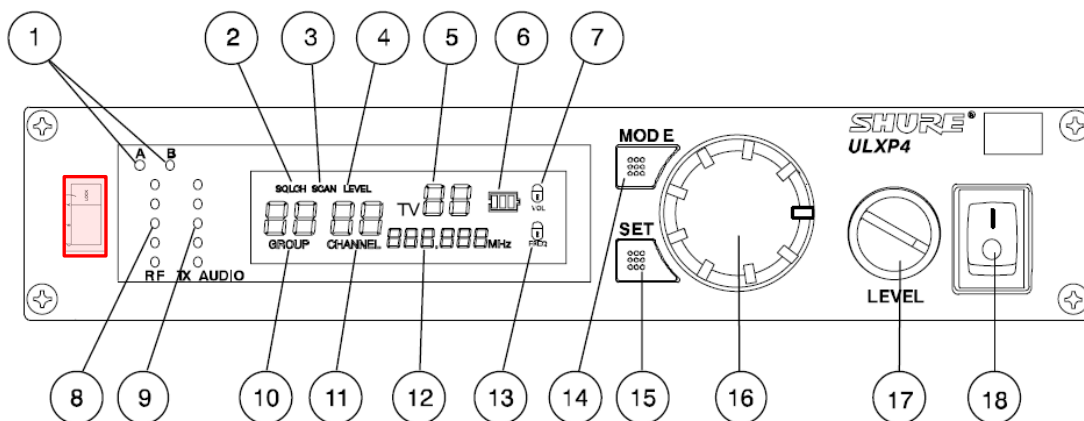
Second, Shure discloses the advantage of locking the receiver “to prevent unauthorized or accidental changes to the settings.” (EX-1004, 18; EX-1002 ¶166.) Nelson explains that its simple locking mechanism provides such functionality. (EX-1005, 4:50-67; EX-1002 ¶166.) Thus, a POSITA would have been motivated to implement Shure’s locking functionality using Nelson’s locking mechanism to simplify the locking and unlocking process, thereby improving the ease of use of Shure’s receiver. (EX-1002 ¶166.)

Third, the combination represents nothing more than the simple addition of a known element (Nelson’s locking switch) to another known element (Shure’s receiver) to obtain the predictable result of locking and unlocking the receiver using a switch. (*Id.* ¶167); *KSR*, 550 U.S. at 417.

Fourth, the combination also uses a known technique (Nelson’s locking switch) to improve a similar device and method (Shure’s receiver and locking functionality) in the same way. (*Id.*)

Fifth, the combination merely applies a known technique (Nelson’s simple locking mechanism) to a known device and method (Shure’s receiver and locking functionality) that is ready for improvement and yields predictable results (locking and unlocking Shure’s receiver using Nelson’s simple sliding mechanism). (*Id.*)

A POSITA would have had a reasonable expectation of success in using Nelson’s locking mechanism in Shure’s receiver because simple locking mechanisms such as Nelson’s were well understood and routinely used in a wide variety of electronic devices. (EX-1002 ¶168.) Additionally, a POSITA would have recognized that Nelson’s switch could easily be added in the available space on the front panel of Shure’s receiver, as shown by Petitioner’s expert’s annotation shown in red below:



(EX-1004, Fig. 3; EX-1002 ¶168 (colored switch added).) And, as discussed above, such a combination reflects nothing more than using Nelson’s locking mechanism in a conventional manner. (EX-1002 ¶168.)

Thus, Shure and Nelson disclose or render obvious each element of claim 1, and claim 1 as a whole would have been obvious to a POSITA. (*Id.* ¶¶131-69.)

B. Claim 2

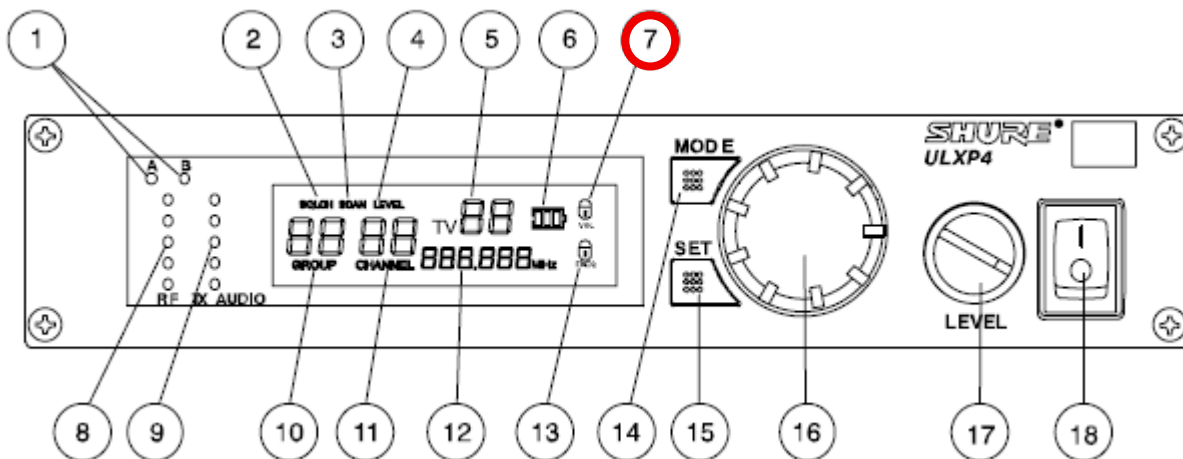
Claim 2 depends from claim 1 and further recites that “when the predetermined operating part is turned on in the locked state, the lock controller is further configured to maintain the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.”

Shure and Nelson together render obvious this limitation. (EX-1002 ¶¶170-72.) In the proposed combination, when the volume is locked and the slider is moved to position A to unlock the volume, the volume would not immediately unlock at the volume set by the knob. (*Supra* §X.A.6; EX-1002 ¶171.) Rather, the volume would only be unlocked when the slider is moved to position A *and* the volume knob is within a predetermined range of the volume at which it was previously locked. (*Id.*) Thus, Shure and Nelson together render obvious maintaining the locked state until the operating value (e.g., volume control knob’s value) falls within the predetermined range based on the lock value (e.g., near or below the locked level). (*Id.*) Accordingly, claim 2 would have been obvious over Shure and Nelson for the reasons discussed above. (EX-1002 ¶¶170-72.)

C. Claim 3

Claim 3 depends from claim 2 and further recites that “when the predetermined operating part is turned on in the locked state, the lock controller is further configured to display information indicating the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.”

Shure discloses a “volume lock indicator” which “[a]ppears after the Volume level setting has been locked” and a “Volume Level warning indicator [that] will flash on the receiver display” “[i]f the volume control knob has been set to a level higher than the locked level.” (EX-1004, 5, 18.) The figure below depicts the volume lock indicator (7) of Shure:



(*Id.*, Fig. 3; EX-1002 ¶174.)

As discussed above, Shure and Nelson render obvious maintaining the locked state after the predetermined operating part is turned on (e.g., after the slider taught by Nelson is moved to the unlock position) until the volume control knob's value falls within a predetermined range based on the locked level. (*Supra* §X.A.6; EX-1002 ¶175.) Shure teaches that, once the volume control knob's value falls within an appropriate range, the “Volume Level warning indicator stops flashing.” (EX-1004, 18; EX-1002 ¶175.)

Accordingly, Shure and Nelson render obvious displaying information indicating the locked state (e.g., the volume lock indicator and Volume Level warning indicator) for a period of time that starts when the predetermined operating part is turned on (e.g., sliding the switch) and ends when the operating value (e.g., volume control knob's value) becomes a value that falls within the predetermined range based on the lock value (e.g., near the locked level). (EX-1002 ¶176.) Shure and Nelson therefore render claim 3 obvious. (*Id.* ¶¶173-77.)

D. Claim 4

Claim 4 depends from claim 1 and further recites that “the predetermined range based on the lock value ranges from a lock value obtained by subtracting a predetermined first value from the lock value to a lock value obtained by adding a predetermined second value to the lock value.”

As discussed above, Shure renders obvious a predetermined range based on the lock value. (*Supra* §X.A.6.) And, it would have been obvious to determine such a range using basic arithmetic by adding and subtracting desired values from the locked level to establish upper and lower bounds of the range, respectively. (EX-1002 ¶179.) Indeed, using addition and subtraction would have been the simplest way to calculate such a range. (*Id.*)

Thus, Shure renders obvious the additional limitation of claim 4, and Shure and Nelson together render claim 4 as a whole obvious. (*Id.* ¶¶178-80.)

E. Claim 5

Claim 5 depends from claim 1 and further recites that “the predetermined range is a range covering values smaller than the lock value.”

As discussed above with respect to claim 4, Shure discloses or renders obvious a “predetermined range based on the lock value,” wherein the range’s lower limit is obtained by subtracting a desired value from the lock value. (*Supra* §X.D; EX-1002 ¶182.) Thus, it would have been obvious to a POSITA that the predetermined range “is a range covering values smaller than the lock value,” as recited in claim 5. (*Id.*)

Additionally, claim 5 would have been obvious because, as discussed above regarding element 1[e][i], a POSITA would have recognized that an undesirably loud spike in volume can be avoided by allowing the device to unlock when the volume knob’s value was at or below the lock value. (*Supra* §X.A.6; EX-1002

¶183.) A POSITA would have also understood that this would have provided the benefit of improved user experience by ensuring that the device is only unlocked when the volume knob's value is at or below the lock level and thereby avoiding such volume spikes. (EX-1002 ¶183.)

Thus, Shure and Nelson render claim 5 obvious. (*Id.* ¶¶181-84.)

F. Claim 7

Claim 7 depends from claim 1 and further recites that “the volume controller includes a mechanical operating device.”

Shure discloses a volume control knob that controls the audio output level. (*Supra* §X.A.3.) A POSITA would have understood that Shure's volume control knob includes conventional components such as a rotary variable resistor to convert the mechanical rotary movement into an electrical signal indicating the desired audio output level. (EX-1002 ¶186.) Accordingly, Shure discloses or renders obvious a mechanical operating device as recited in claim 7. (*Id.*) Thus, Shure and Nelson render claim 7 obvious. (*Id.* ¶¶185-87.)

G. Claim 8

Claim 8 recites a method claim for performing the same limitations as the apparatus of claim 1. (EX-1002 ¶188.) Accordingly, Shure and Nelson render claim 8 obvious for the reasons discussed above regarding claim 1. (*Supra* §X.A; EX-1002 ¶188.)

XI. GROUND 2B: CLAIMS 1-5 AND 7-8 WOULD HAVE BEEN OBVIOUS OVER SHURE, NELSON, AND KAJIYAMA.

To the extent PO argues that Shure and Nelson do not disclose or render obvious the limitations relating to unlocking “when the operating value becomes a value that falls within a predetermined range based on the lock value” (e.g., as recited in claim 1), those limitations are disclosed by and/or would have been obvious in further view of Kajiyama. Thus, Shure, Nelson and Kajiyama render the claims obvious. (EX-1002 ¶¶189-212.) Petitioners incorporate the discussion of Shure and Nelson from Ground 2A and discuss here only the claim elements for which Kajiyama is relevant.

A. Claim 1, Element 1[e][i]: Unlocking

Element 1[e][i] recites that the lock controller is configured “to switch, when a predetermined operating part is turned on in the locked state, the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value and ends when the predetermined operating part is turned off.”

Kajiyama discloses or renders obvious this limitation because Kajiyama discloses switching to the unlocked state when the operating value matches the lock value. (*Supra* §VII.A.6; EX-1002 ¶191.)

A POSITA would have been motivated to combine the teachings of Kajiyama and Shure (as modified by Nelson), and to modify Shure’s device to unlock when

the operating value matches the lock value (or otherwise falls within a predetermined range as Kajiyama renders obvious) for many reasons. (EX-1002 ¶¶192-98.)

First, as discussed above, Shure explains that the receiver should remain locked while the volume is turned “to a level higher than the locked level,” and that the volume level should be turned down sufficiently before the receiver is unlocked. (*Supra* §X.A.6.) But Shure does not explain how this functionality should be implemented. (*Id.*) A POSITA would have been motivated to look to other references, including Kajiyama, for a simple way to achieve this functionality by unlocking the volume when the volume level matches the lock value or a range of values around the lock value. (EX-1002 ¶193.)

Second, as discussed above, such a modification is one of a finite number of solutions that a POSITA would have been motivated to try. (*Supra* §X.A.6; EX-1002 ¶194.)

Third, a POSITA would have understood that Shure’s receiver is designed to avoid large changes in volume when it is unlocked. (EX-1002 ¶195.) Thus, a POSITA would have been motivated to combine Shure and Kajiyama and thereby avoid large changes in volume when unlocking Shure’s receiver by matching the volume level with the lock value or bringing the volume level within a predetermined range. (*Id.*)

Fourth, the combination represents nothing more than the simple addition of a known element (unlocking when volume matches or is within a predetermined range of the lock value) to another known element (Shure's receiver) to obtain the predictable result of unlocking Shure's receiver when the volume level matches the lock value or a range of values around the lock value. (*Id.* ¶196); *KSR*, 550 U.S. at 417.

Fifth, the combination also uses a known technique (unlocking when volume matches or is within a predetermined range of the lock value) to improve a similar device and method (Shure's receiver and locking functionality) in the same way. (*Id.*)

Sixth, such a modification reflects merely applying a known technique (unlocking when volume matches or is within a predetermined range of the lock value) to a known device (Shure's receiver) that is ready for improvement and yields predictable results (unlocking only when the volume level matches the lock value or a range of values around the lock value). (*Id.*)

A POSITA would have reasonably expected success in modifying Shure in this way. (EX-1002 ¶197.) The combination would have been trivial, involving the application of simple arithmetic to match the volume level and lock value of Shure's receiver to unlock the receiver. (*Id.*)

Accordingly, Shure, Nelson, and Kajiyama render claim 1 obvious. (*Id.* ¶¶191-98.)

B. Claim 2

Claim 2 depends from claim 1 and further recites that “when the predetermined operating part is turned on in the locked state, the lock controller is further configured to maintain the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.”

As discussed above, Shure and Nelson render claim 2 obvious. (*Supra* §X.B.) Shure and Kajiyama render obvious switching to an unlocked state only when the volume level matches the lock value or a predetermined range around the lock value. (*Supra* §XI.A.) A POSITA would have understood that such a predetermined range is “based on the lock value” because it is a range of values centered around the lock value. (*Id.*; EX-1002 ¶200.)

Accordingly, Shure, Nelson, and Kajiyama render obvious switching, when a predetermined operating part is turned on in the locked state (e.g., when Nelson’s lock is moved from position C to position A), the locked state to the non-locked state (e.g., unlocking Shure’s receiver) for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value (e.g., when Shure’s volume control knob’s value matches the locked level or

is within a predetermined range of the locked level) and ends when the predetermined operating part is turned off (e.g., when Nelson’s lock is moved back to position C). (EX-1002 ¶¶199-202.) Accordingly, Shure, Nelson, and Kajiyama render claim 2 obvious. (*Id.*)

C. Claim 3

Claim 3 recites: “The receiving apparatus according to claim 2, wherein, when the predetermined operating part is turned on in the locked state, the lock controller is further configured to display information indicating the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.” As discussed above, Shure and Nelson render obvious displaying information indicating the locked state while Shure’s receiver is locked. (*Supra* §X.C.) Shure, Nelson, and Kajiyama render obvious remaining in a locked state after the operating part is turned on until the volume level matches the lock value or is within a predetermined range based on the lock value. (*Supra* §§X.A.6, X.B, XI.A-XI.B.)

Shure, Nelson, and Kajiyama therefore render obvious displaying information indicating the locked state (e.g., Shure’s volume lock indicator and Volume Level warning indicator) for a period of time that starts when the predetermined operating part is turned on (e.g., sliding Nelson’s switch to position A) and ends when the

operating value (e.g., volume control knob's value) becomes a value that falls within the predetermined range based on the lock value (e.g., matches the lock value or a predetermined range of values around it). (EX-1002 ¶¶203-05.) Shure, Nelson, and Kajiyama therefore render claim 3 obvious. (*Id.*)

D. Claim 4

Claim 4 depends from claim 1 and further recites that “the predetermined range based on the lock value ranges from a lock value obtained by subtracting a predetermined first value from the lock value to a lock value obtained by adding a predetermined second value to the lock value.” As discussed above, Kajiyama renders the additional limitation of claim 4 obvious. (*Supra* §VII.C.) Accordingly, Shure, Nelson, and Kajiyama render claim 4 obvious. (EX-1002 ¶¶206-07.)

E. Claim 5

Claim 5 depends from claim 1 and further recites that “the predetermined range is a range covering values smaller than the lock value.” As discussed for claims 4 and 5 in Ground 1A, Kajiyama renders this obvious. (*Supra* §§VII.C-VII.D; EX-1002 ¶208.) A POSITA would have been motivated to implement a range covering values smaller than the lock value for the reasons discussed in Ground 1 (*id.*) and claim 4 immediately above. (*Supra* §XI.D.) Accordingly, Shure and Kajiyama render obvious the additional limitation of claim 5, and claim 5 as a whole would have been obvious. (*Supra* §VII.D; EX-1002 ¶¶208-09.)

F. Claim 7

Claim 7 depends from claim 1 and further recites that “the volume controller includes a mechanical operating device.” Shure, Nelson, and Kajiyama render claim 7 obvious for the reasons discussed above. (*Supra* §§VII.E, X.F; EX-1002 ¶¶210-11.)

G. Claim 8

Claim 8 recites a method claim for performing the same limitations as the apparatus of claim 1. (EX-1002 ¶212.) Accordingly, Shure, Nelson, and Kajiyama render obvious claim 8 for the reasons discussed above for claim 1. (*Supra* §§X.A, XI.A; EX-1002 ¶212.)

XII. SECONDARY CONSIDERATIONS OF NONOBVIOUSNESS

Where, as here, a strong *prima facie* obviousness showing exists, secondary considerations may not dislodge the obviousness conclusion. *Leapfrog Enters. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). Petitioners are aware of no evidence supporting a claim for secondary considerations.

XIII. CONCLUSION

Petitioners request the Board institute trial and cancel all challenged claims.³

³ Petitioners will address discretionary denial issues if raised by PO. See Memorandum from Acting Director Stewart, *Interim Processes for PTAB Workload Management* (March 26, 2025).

XIV. MANDATORY NOTICES, GROUNDS FOR STANDING, AND FEE PAYMENT

Pursuant to 37 C.F.R. §42.8(a)(1), the mandatory notices identified in 37 C.F.R. §42.8(b) are provided below as part of this Petition.

A. Real Party-In-Interest (37 C.F.R. §42.8(b)(1))

Amazon.com, Inc., Amazon.com Services LLC, and Amazon Web Services, Inc. are the real parties-in-interest.

B. Related Matters (37 C.F.R. §42.8(b)(2))

PO asserted the '819 patent against Petitioners in district court. *SoundClear Technologies LLC v. Amazon.com, Inc. et al.*, No. 1:24-cv-00728 (E.D. Va.). After intradistrict transfer, that case is now No. 2:24-cv-00320.⁴

If this IPR is instituted and the above proceeding is not stayed, Petitioners hereby stipulate not to pursue in that proceeding any ground of invalidity, against any claim challenged herein, that was raised or reasonably could have been raised in this Petition.

To the best knowledge of Petitioners, the '819 patent is or has been involved in the following additional proceedings:

Name	Number	Court	Filed
<i>SoundClear Technologies LLC v. Google LLC</i>	2:24-cv-00321	E.D. Va.	May 1, 2024

⁴ On April 7, 2025, Petitioners filed a Motion to Stay Pending IPR in the district court, which PO did not oppose. Thus, a stay is highly likely.

C. Lead and Backup Counsel (37 C.F.R. §42.8(b)(3))

Petitioner provides the following designation of counsel, all of whom are included in Customer No. 20,995 identified in Petitioner’s Power of Attorney.

Lead Counsel	Back-up Counsel
Colin B. Heideman (Reg. No. 61,513) 2cbh@knobbe.com BoxSEAZN2L2103LP3@knobbe.com <u>Postal and Hand-Delivery Address:</u> Knobbe, Martens, Olson, & Bear, LLP 555 110th Ave. NE, Ste. 500 Bellevue, WA 98004 Telephone: 206-405-2000 Facsimile: 206-405-2001	Joseph R. Re (Reg. No. 31,291) 2jrr@knobbe.com Jeremy A. Anapol (Reg. No. 75,686) 2jaa@knobbe.com <u>Postal and Hand-Delivery Address:</u> Knobbe, Martens, Olson, & Bear, LLP 2040 Main Street, 14th Floor Irvine, CA 92614 Telephone: (949) 760-0404 Facsimile: (949) 760-9502 Christie R.W. Matthaei (Reg. No. 62,933) 2crw@knobbe.com Nathan D. Reeves (Reg. No. 77,806) 2ndr@knobbe.com Logan P. Young (Reg. No. 79,294) 2lpy@knobbe.com <u>Postal and Hand-Delivery Address:</u> Knobbe, Martens, Olson & Bear, LLP 555 110th Ave. NE, Ste. 500 Bellevue, WA 98004 Telephone: (206) 405-2000 Facsimile: (206) 405-2001

D. Service Information (37 C.F.R. §42.8(b)(4))

Please direct all correspondence to lead counsel and back-up counsel at the addresses shown above. Petitioner also consents to electronic service by email to BoxSEAZN2L2103LP3@knobbe.com.

E. Grounds for Standing (37 C.F.R. §42.104)

Petitioners certify that the '819 patent is available for IPR and are not barred or estopped from requesting IPR on the identified grounds. This petition is being filed within one year of service of the original complaint against Petitioners in the district court litigation.

F. Payment of Fees (37 C.F.R. §42.103)

The Office may charge the §42.15(a) fee to Deposit Account No. 11-1410. Review of seven claims is requested. Payment for any additional fees due may be charged to the above-referenced Deposit Account.

Respectfully submitted,

KNOBBE MARTENS OLSON & BEAR, LLP

Dated: May 30, 2025

/Colin B. Heideman /
Colin B. Heideman (Reg. No. 61,513)
Joseph R. Re (Reg. No. 31,291)
Jeremy A. Anapol (Reg. No. 75,686)
Christie R.W. Matthaei (Reg. No. 62,933)
Nathan D. Reeves (Reg. No. 77,806)
Logan P. Young (Reg. No. 79,294)

Counsel for Petitioners Amazon.com, Inc.,
Amazon.com Services LLC, and
Amazon Web Services, Inc.

APPENDIX

Listing of Claims from U.S. 9,804,819	
Claim 1	
1[pre]	A receiving apparatus, comprising:
1[a]	an audio output unit configured to output audio corresponding to an audio signal;
1[b]	a volume operating unit configured to output an operating value indicating a volume level of the audio according to a user operation;
1[c]	a lock controller configured to switch between a non-locked state in which the volume level of the audio can be varied based on the operating value and a locked state in which the volume level of the audio is fixed by a constant lock value for the operating value; and
1[d]	a volume controller configured to cause the audio output unit to output the audio having a volume level corresponding to the operating value in the non-locked state and to cause the audio output unit to output the audio having a volume level corresponding to the lock value in the locked state, wherein
1[e]	the lock controller is further configured [i] to switch, when a predetermined operating part is turned on in the locked state, the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value and ends when the predetermined operating part is turned off, and [ii] to update the lock value with the operating value and switch the non-locked state to the locked state when the predetermined operating part is turned off after having switched to the non-locked state.

Listing of Claims from U.S. 9,804,819	
Claim 2	
--	The receiving apparatus according to claim 1, wherein, when the predetermined operating part is turned on in the locked state, the lock controller is further configured to maintain the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.
Claim 3	
--	The receiving apparatus according to claim 2, wherein, when the predetermined operating part is turned on in the locked state, the lock controller is further configured to display information indicating the locked state for a period of time that starts when the predetermined operating part is turned on and ends when the operating value becomes a value that falls within the predetermined range based on the lock value.
Claim 4	
--	The receiving apparatus according to claim 1, wherein the predetermined range based on the lock value ranges from a lock value obtained by subtracting a predetermined first value from the lock value to a lock value obtained by adding a predetermined second value to the lock value.
Claim 5	
--	The receiving apparatus according to claim 1, wherein the predetermined range is a range covering values smaller than the lock value.
Claim 7	
--	The receiving apparatus according to claim 1, wherein the volume controller includes a mechanical operating device.

Listing of Claims from U.S. 9,804,819	
Claim 8	
8[pre]	A control method for a receiving apparatus, the receiving apparatus comprising:
8[a]	an audio output unit configured to output audio corresponding to an audio signal;
8[b]	a volume operating unit configured to output an operating value indicating a volume level of the audio according to a user operation; and
8[c]	a volume controller configured to cause the audio output unit to output the audio having a volume level corresponding to the operating value in a non-locked state in which the volume level of the audio can be varied based on the operating value and to cause the audio output unit to output the audio having a volume level corresponding to the lock value in a locked state in which the volume level of the audio is fixed by a constant lock value for the operating value, the control method comprising:
8[d]	when a predetermined operating part is turned on in the locked state, switching the locked state to the non-locked state for a period of time that starts when the operating value becomes a value that falls within a predetermined range based on the lock value and ends when the predetermined operating part is turned off; and
8[e]	when the predetermined operating part is turned off after having switched to the non-locked state, updating the lock value with the operating value and switching the non-locked state to the locked state.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that this **PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1-5 AND 7-8 OF U.S. PATENT NO. 9,804,819** contains 13,077 words according to the word-processing program used to prepare this paper. The foregoing word count complies with the 14,000-word type-volume limit specified by 37 C.F.R. §42.24(a)(1).

Dated: May 30, 2025

By: /Colin B. Heideman /
Colin B. Heideman (Reg. No. 61,513)
KNOBBE MARTENS OLSON & BEAR, LLP

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this **PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1-5 AND 7-8 OF U.S. PATENT NO. 9,804,819** and **ACCOMPANYING EXHIBITS** are being served on May 30, 2025 via Federal Express overnight mail on counsel of record for U.S. Patent No. 9,804,819, at the Correspondence Address of record below:

182086 – Daignault Iyer LLP
8229 Boone Blvd., Suite 450
Vienna, VA 22182
United States

A courtesy copy is also being served via email on counsel for the patent holder in the pending litigation:

Daignault Iyer LLP
8229 Boone Blvd., Suite 450
Vienna, VA 22182
Email: DI-SoundClear@daignaultiyer.com

Dated: May 30, 2025

By: /Colin B. Heideman /
Colin B. Heideman (Reg. No. 61,513)
KNOBBE MARTENS OLSON & BEAR, LLP