

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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QSC AUDIO PRODUCTS, LLC  
Petitioner

v.

CREST AUDIO, INC.  
Patent Owner

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Case IPR2014-00131  
Patent 5,652,544

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Before GLENN J. PERRY, BRYAN F. MOORE, and  
MIRIAM L. QUINN, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

DECISION  
Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## I. INTRODUCTION

QSC Audio Products, LLC (“Petitioner”) filed a Corrected Petition, on November 18, 2013, requesting an *inter partes* review of claims 1-15, 18-21, and 23-26 of U.S. Patent No. 5,652,544 (Ex. 1001, “the ’544 patent”). Paper 6 (“Pet.”). In response, Crest Audio, Inc. (“Patent Owner”) filed a Preliminary Response on February 17, 2014. Paper 15 (“Prelim. Resp.”). We have jurisdiction under 35 U.S.C. § 314.

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides as follows:

THRESHOLD—The Director may not authorize an *inter partes* review to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.

Pursuant to 35 U.S.C. § 314, the Board finds a reasonable likelihood that Petitioner will prevail with respect to claims 1-15, 18-21, and 23-26 of the ’544 patent and, thus, authorizes an *inter partes* review to be instituted as to those claims..

### A. *Related Proceedings*

Petitioner indicates that the ’544 patent is involved in the co-pending action *Crest Audio, Inc. v. QSC Audio Products, LLC*, 3:13-CV610 DPJ-FKB, filed in the United States District Court for the Southern District of Mississippi, Jackson Division. Pet. 1.

*B. The '544 Patent*

The '544 patent is directed to an audio amplifier with a digital signal processor in the amplifier. An amplifier programmer is removably connected to the amplifier to allow the signal processing functions and/or parameters to be changed or modified without modifying the signal processing circuit elements. Ex. 1001, col. 2, ll. 48-58. Programming information can be input from portable programmer 200 through connector 300 and programming port 120 to control circuit 158. *Id.* at col. 6, ll. 41-47. This programming information may comprise signal processing function programs and program data for defining function parameters, parameter modification requests, new parameters, and other suitable control information. *Id.* Control circuit 158 may comprise a programmable microprocessor that serves as an interface between the portable programmer and signal processing circuit 154. *Id.* at col. 6, ll. 48-51. The control circuit and signal processing circuit of the amplifier may be formed by a digital signal processor. *Id.* at col. 6, ll. 51-55. If a digital signal processor is provided in amplifier 100, both signal processing functions and function parameters may be changed by inputting control information from portable programmer 200 to amplifier 100. *Id.* at col. 6, ll. 48-54.

*C. Illustrative Claim*

Of the challenged claims, claim 1 is the only independent claim. Claim 1 is illustrative of the claimed subject matter of the '544 patent, and is reproduced below:

1. An amplifier comprising:
  - an input port for receiving an input signal;
  - a signal processing circuit comprising a digital signal processor capable of receiving at least one of a signal processing function and a signal processing function parameter, wherein the signal processing circuit receives the input signal from the input port and modifies the input signal;
  - a power amplifier for amplifying the modified input signal received from the signal processing circuit and outputting an amplified signal to an output device;
  - an external programmer; and
  - a programming signal input port for receiving at least one programming signal from the external programmer, the external programmer being removably connectable to the programming signal input port for modifying at least one of a signal processing function and a signal processing function parameter defined in said signal processing circuit.

*D. Prior Art Relied Upon*

Petitioner relies upon the following prior art references:

Krokstad et al.	WO 91/08654	June 13, 1991 (Ex. 1007)
Porambo et al.	US 5,450,624	Sept. 12, 1995 (Ex. 1006)
Sudo et al.	US 5,822,775	Oct. 13, 1998 (Ex. 1005)
TEXAS INSTRUMENTS TMS320 SECOND GENERATION DIGITAL SIGNAL PROCESSORS, 1-67 (1991) ("TMS320," Ex. 1008)		

*E. The Asserted Grounds*

Petitioner asserts that the challenged claims are unpatentable based on the following grounds:

Reference[s]	Basis	Claims challenged
Sudo and Porambo	§ 103	1-6, 9-13, 15, and 19
Sudo and Krokstad	§ 103	1-6, 9-13, 15, 19, 21, and 25
Sudo, Porambo and admitted prior art in the '544 patent ("APA")	§ 103	7, 20, 21, 23, 24, 25, and 26
Sudo, Krokstad, and APA	§ 103	7, 24, and 26
Sudo, Porambo, and TMS320	§ 103	8
Sudo, Krokstad, and TMS320	§ 103	8
Sudo, Krokstad, and Porambo	§ 103	14 and 18

II. ANALYSIS

*A. Claim Construction*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special

definition for a claim term must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner provides constructions for several claim terms. Pet. 12-15. Patent Owner does not offer any constructions for claim terms. Nonetheless, we find that none of the claim terms recited in the claims need to be construed explicitly at this time.

*B. Claims 1-6, 9-13, 15, and 19 – Obviousness over Sudo (Ex. 1005) and Porambo (Ex. 1006)*

Petitioner argues that claims 1-6, 9-13, 15, and 19 are unpatentable under 35 U.S.C. § 103(a) over Sudo and Porambo. Pet. 21-24, 27-28, 30-36, 41-47, 49, and 51. Sudo teaches a digital signal processor (DSP) that receives an input audio signal on an input port and performs a digital signal process on the input audio signal according to a programmed digital signal processing function (program) and associated parameters (coefficients) in order to modify the input signal to provide a desired sound field. Ex. 1005, col. 3, l. 35–col. 4, l. 5. Microcomputer 20 that operates to program DSP 2 is connected to DSP 2 through interface 19. *Id.* If a user selects a key representing a different sound field on the keyboard, microcomputer 20 reads out the processing program corresponding to the selected sound field control key and the corresponding coefficients, and transfers this data to the DSP through interface 19. *Id.* at col. 3, l. 61–col. 4, l. 24. Porambo teaches connecting the outputs of a DSP in a DSP-controlled audio system to power amplifier 34 and speaker load (speakers 16, 18, 20, 22). *See* Ex. 1006, fig. 1.

Below we discuss independent claim 1 from which all other claims challenged in this ground depend. Claim 1 recites “a signal processing circuit

comprising a digital signal processor capable of receiving at least one of a signal processing function and a signal processing function parameter, wherein the signal processing circuit receives the input signal from the input port and modifies the input signal.”

Petitioner asserts that Sudo’s disclosure of interface 19, which receives a program and coefficients, meets this limitation. Pet. 23 (citing Ex. 1005, col. 4, ll. 1-5, 8-16). Thus, on the record before us, Petitioner has shown sufficiently that Sudo discloses this limitation.

In addition, claim 1 recites “external programmer being removably connectable to the programming signal input port.” Petitioner asserts that Porambo’s microcomputer 20 “is removably connectable to the programming signal input port [because one c]ould disconnect the microcomputer 20 from the interface 19.” Pet. 24 (citing Ex. 1003 ¶ 13). Petitioner’s declarant Dr. Ellis testified that the “fact that the microcomputer 20 is shown connected to the DSP through the interface 19 suggests that the microcomputer 20 is not hardwired to the DSP but is connected via some sort of removable connection.” Ex. 1003 ¶ 13. Patent Owner argues that “[t]here is not even a discussion in Sudo regarding the type of connection between the interface 19 and the controller 20 or how Sudo could function if the connection were designed to be removably connectable,” and, thus, “the Petition’s assertion that the controller 20 is removably connectable to the DSP 2 through the interface 19 is entirely speculative and not supported by the disclosure in Sudo.” Prelim. Resp. 6.

We are persuaded, based on the record presently before us, without opposing declaration testimony from Patent Owner, that an ordinarily skilled artisan would

have understood Sudo's connection to be removable, as recited in claim 1. We do not decide the ultimate issue in a decision of whether to institute *inter partes* review. Rather, we only conclude at this stage that Petitioner has shown sufficient evidence bearing on the factual determinations underlying a potential conclusion of obviousness, recognizing that Patent Owner has not yet provided evidence in opposition. The facts underlying Patent Owner's position, however, are not vetted sufficiently, at this time, to overcome the weight of the evidence presented by Petitioner. Thus, on the record before us, Petitioner has shown sufficiently that Sudo teaches an "external programmer being removably connectable to the programming signal input port."

Claim 1 also recites "a power amplifier for amplifying the modified input signal received from the signal processing circuit and outputting an amplifier signal to an output device." Petitioner asserts that Porambo's disclosure of power amplifier 34 and speakers 16-22 meets this limitation. Pet. 23 (citing Ex. 1006, Fig. 1). At this time, we are persuaded that this assertion is reasonable. Thus, on the record before us, Petitioner has shown sufficiently that Porambo discloses this limitation.

Petitioner notes that a person of ordinary skill in the art of audio amplifiers "would recognize that the circuit or apparatus at the post stage mentioned by Sudo would refer to some sort of power amplifier and output device such as speakers and thus connecting output from the DSP in Sudo to a power amplifier and an output device [such as the amplifier and speakers taught by Porambo] would have been obvious." Pet 37-38; *see* Ex. 1003 ¶¶ 32-33. At this time, we are persuaded that these assertions are reasonable. Thus, on the record before us, Petitioner has provided sufficient rationale to combine Sudo and Porambo. *Id.* at 37-38.



Additionally, for the above reasons, Petitioner has sufficiently shown that the combination of Sudo and Porambo teach or suggest the limitations of claim 1.

In addition to claim 1, Petitioner also provides detailed explanations of how each limitation of claims 2-6, 9-13, 15, and 19 is taught or suggested by the combination of Sudo and Porambo. Pet. 27, 28, 30-36, 41-47, 49, 51. At this time, based on the record before us, we are persuaded by these explanations. Upon review of Petitioner's analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claim 1, and claims 2-6, 9-13, 15, and 19 that depend ultimately from claim 1, on the ground that these claims would have been obvious over Sudo and Porambo.

*C. Claims 1-6, 9-13, 15, 19, 21, and 25 – Obviousness over Sudo and Krokstad (Ex. 1007)*

Petitioner argues that claims 1-6, 9-13, 15, 19, 21, and 25 are unpatentable under 35 U.S.C. § 103(a) over Sudo and Krokstad. Pet. 24-27, 29-36, 42-49, 51, 54, 57-58. Krokstad discloses a DSP-controlled amplifier for use in a hearing aid. Ex. 1007, Abstract. Krokstad further discloses that the DSP can provide signals to a power amplifier if needed. *Id.* at 18, Fig. 4d. In Krokstad, a personal computer is used to program the DSP with different functions and parameters that are optimized for each particular user. *Id.* at 21. The computer is removably connectable to the amplifier and DSP via an RS232 port. *Id.* at 21, Fig. 5a.

Below we discuss independent claim 1 from which all other claims challenged in this ground depend. Claim 1 recites “a signal processing circuit comprising a digital signal processor capable of receiving at least one of a signal

processing function and a signal processing function parameter, wherein the signal processing circuit receives the input signal from the input port and modifies the input signal.”

As in the ground for obviousness over Sudo and Porambo discussed above, Petitioner asserts that Sudo’s disclosure of interface 19, which receives a program and coefficients, meets this limitation. Pet. 25 (citing Ex. 1005, col. 4, ll. 1-5, 8-16. On the record before us, Petitioner has shown sufficiently that Sudo discloses this limitation.

Claim 1 further recites “external programmer being removably connectable to the programming signal input port.” Petitioner asserts that Krokstad’s removable connection to a personal computer meets this limitation. Pet. 26-27 (citing Ex. 1007, 21). At this time, we are persuaded that this assertion is reasonable. Thus, on the record before us, Petitioner has shown sufficiently that Krokstad discloses this limitation.

In addition, claim 1 recites “a power amplifier for amplifying the modified input signal received from the signal processing circuit and outputting an amplifier signal to an output device.” Petitioner asserts that Krokstad’s disclosure of a power amplifier meets this limitation. Pet. 26 (citing Ex. 1007, 18, ll. 17-22). On the record before us, Petitioner has shown sufficiently that Krokstad discloses this limitation.

Patent Owner argues that “[b]esides alleging that the proposed modification of Sudo would be beneficial, the Petition makes no attempt to explain why a person having ordinary skill in the art would be motivated to modify Sudo in the way proposed in the Petition.” Prelim. Resp. 15. Nonetheless, a benefit gained from a

combination is a motivation to make such a combination. *See Sciele Pharma Inc. v. Lupin Ltd.*, 684 F.3d 1253, 1262 (Fed.Cir.2012); *cf. Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000) (explaining that a Court can examine the benefits gained and lost by making the combination in finding a motivation to combine). Petitioner argues that a person of ordinary skill in the art would have been motivated to program the DSP of Sudo with a programmer that is connected via a removable connection such as the RS232 port shown in Krokstad, “in order to allow the programmer to be easily connected to or disconnected from the DSP or to allow a general purpose computer that could be used for other tasks to be used in programming the DSP.” Pet 25; *see* Ex. 1003 ¶¶ 36-37.

Patent Owner also argues that modifying Sudo to include a removable programmer would change the principle of operation of Sudo and that Sudo teaches away from the use of a removable connection. Prelim. Resp. 12-13, 15. We disagree.

Patent Owner asserts that “[i]n Sudo, the microcomputer 20 and DSP 2 are synchronized and in constant connection so that coefficient data can be replaced without interrupting an arithmetic operation or the reproduction of an audio signal.” Prelim. Resp. 12 (citing Ex. 1005, col. 6, ll. 2-4). Patent Owner also asserts that Sudo states that “it is necessary to write the coefficient data into new values while continuing the arithmetic operation in order not to cause an inconvenience, such as stopping the arithmetic operation currently being executed and breaking the reproduction sound of the audio signal.” *Id.* 9-10 (citing Ex. 1005, col. 1, ll. 61-66). Patent Owner asserts that, in contrast, “the hearing aid in Krokstad uses a removable RS232 interface so that the hearing aid can be

programmed while connected to a storage case and not in use.” Pet. 12 (citing Ex. 1007, 9, 21).

Sudo, however, does not state that the microcomputer must *always* be in connection with the DSP; rather, it states that the connection must be maintained during the reproduction of sound to avoid interrupting such reproduction, for example, during a concert performance. *See* Ex. 1005, col. 2, ll. 23-31. Thus, Sudo is silent on whether a connection must be maintained when the system is not in use, i.e., reproducing sound. This is consistent with Krokstad (rather than teaching away from Krokstad), because Krokstad allows for programming when not in use. Even if Sudo is directed primarily to programming a DSP during a live performance, it nevertheless would be useful as a programmable DSP when not in use during a live performance. A reference may be read for all that it teaches, including uses beyond its primary purpose. *See KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418–21 (2007); *see also Beckman Insts., Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed.Cir.1989). Thus, for the purpose of this decision, we are persuaded that modifying Sudo to include a removable programmer would not change the principle of operation of Sudo and that Sudo does not teach away from the use of a removable connection. Additionally, we are persuaded that Petitioner has provided sufficient rationale to combine Sudo and Krokstad. Pet. 37-38. Further, for the above reasons, Petitioner has sufficiently shown that the combination of Sudo and Krokstad teach or suggest the limitations of claim 1.

Petitioner also provides detailed explanations of how each limitation of claims 2-6, 9-13, 15, 19, 21, and 25 is taught or suggested by the combination of Sudo and Krokstad. Pet. 29-37, 42-52, 54, 57-58. At this time, based on the

record before us, we are persuaded by these explanations. Upon review of Petitioner's analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claims 1-6, 9-13, 15, 19, 21, and 25 on the ground that these claims would have been obvious over Sudo and Krokstad.

*D. Claims 7, 20, 21, 23, 24, 25, and 26 – Obviousness over Sudo, Porambo and APA*

Petitioner argues that claims 7, 20, 21, 23, 24, 25, and 26 are unpatentable under 35 U.S.C. § 103(a) over Sudo, Porambo, and APA. Pet. 37-38, 52-59. The '544 patent discloses, inter alia, that amplifiers having a plurality of control knobs for controlling gain, volume, an equalizer circuit, a level threshold, etc., on a control panel of the amplifier were "conventional" or well known in the art. *See* Ex. 1001, col. 5, ll. 46-55.

Below we discuss claim 20 that is illustrative of the other claims challenged in this ground. Claim 20 recites that "digital signal processor receives and stores at least one of a signal processing function and a signal processing function parameter for a crossover function." Patent Owner argues that "physical resistive elements, capacitive elements, switching elements, and operational amplifiers in this conventional signal processing circuit can define parameters for a cross-over function [, as disclosed in the '544 patent]. However, the relevant claim limitations are directed to a digital processing circuit." Prelim. Resp. 17-18. Patent Owner argues, therefore, that "a digital signal processor could not receive and process a physical resistive element, a capacitive element, a switching element, or an operation amplifier, as discussed in this portion of the '544 Patent." *Id.* at 18.

Thus, the issue, as presented by the Patent Owner, is whether it would have been obvious to provide a digital version of the well-known crossover function (or other specific functions mentioned in the claims at issue). We are persuaded that Petitioner has shown sufficiently that a digital DSP such as the one disclosed in Sudo can receive digital functions which can create a concert hall emulation. Pet. 52. As noted above, Petitioner also has shown sufficiently that the functions specified in the claims at issue are well known. We credit the testimony of Petitioner's declarant Dr. Ellis that a person of ordinary skill in the art would have known "DSPs could be used to perform the functions previously performed by discrete circuit components" and would have found it obvious in view of the Patent Owner's APA to program a DSP to perform a well-known cross-over function as a way to provide the function without having to add additional circuitry to the amplifier. Ex. 1003 ¶¶ 92-93. At this time, we are persuaded by Petitioner's argument based on the evidence in the record. Thus, on the record before us, Petitioner has shown sufficiently that the combination of Sudo, Porambo, and APA teaches the sole limitation of claim 20, "digital signal processor receives and stores at least one of a signal processing function and a signal processing function parameter for a crossover function."

Petitioner also provides detailed explanations of how each limitation of claims 7, 21, 23, 24, 25, and 26 is taught or suggested by the combination of Sudo, Porambo, and the admissions of the '544 patent discussed above. Pet. 37-38, 52-59. For reasons discussed above regarding claim 20, we are persuaded by these explanations based on the record before us. Petitioner also asserts that "[a] person of ordinary skill in the art would have considered the placement of a programming

signal input port on a control panel that included other knobs, etc., for the amplifier [of Sudo or Porambo] to be an obvious way to conveniently group the inputs to the amplifier.” *Id.* at 37 (citing Ex. 1003 ¶ 56). Thus, the Petitioner has provided evidence of sufficient rationale to combine Sudo, Porambo, and APA. Upon review of Petitioner’s analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claims 7, 20, 21, 23, 24, 25, and 26 on the ground that these claims would have been obvious over Sudo, Porambo, and APA.

*E. Claims 7, 24, and 26 – Obviousness over Sudo, Krokstad, and APA*

Petitioner argues that claims 7, 24, and 26 are unpatentable under 35 U.S.C. § 103(a) over Sudo, Krokstad, and APA. Pet. 38-39, 56-57, 59. The ’544 patent discloses, inter alia, that amplifiers having a plurality of control knobs for controlling gain, volume, an equalizer circuit, a level threshold, etc., on a control panel of the amplifier were “conventional” or well known in the art. *See* Ex. 1001, col. 5, ll. 46-55.

Petitioner provides detailed explanations of how each limitation of claims 7, 24, and 26 is taught or suggested by the combination of Sudo, Krokstad, and the admissions of the ’544 patent discussed above. Pet. 38-39, 56-57, 59. For reasons discussed above regarding the combination of Sudo, Porambo, and APA, we are persuaded by these explanations based on the record before us. Petitioner also asserts that a person of ordinary skill in the art would have considered “the placement of a programming signal input port of the type shown by Krokstad on a control panel that included other knobs [,] etc. [,] for the amplifier as known from

the APA to be an obvious way to conveniently group the inputs to the amplifier.” *Id.* 38-39 (citing Ex. 1003 ¶ 56). Thus, we are persuaded the Petitioner has provided sufficient rationale to combine Sudo, Krokstad, and APA. Upon review of Petitioner’s analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claim 7, 24, and 26 on the ground that these claims would have been obvious over Sudo, Krokstad, and APA.

*F. Claim 8 – Obviousness over Sudo, Porambo and TMS320 (Ex. 1008)*

Petitioner argues that claim 8 is unpatentable under 35 U.S.C. § 103(a) over Sudo, Porambo, and TMS320. Pet. 39-40. TMS320 discloses non-volatile memories (ROM and EPROM) in a DSP. *See* Ex. 1008, 6.

Claim 8 recites “a non-volatile storage means for storing a set [sic] performance characteristics.” Petitioner asserts that TMS320’s disclosure of non-volatile memory meets this limitation. At this time, we are persuaded that this assertion is reasonable. Petitioner also asserts that a person of ordinary skill in the art would have considered “the use of a nonvolatile storage means (memory) in a DSP to have been obvious in light of the TMS320 Data Sheet as a convenient way to allow the DSP to retain stored performance characteristics in the event that power was removed from the device.” Pet. 39-40 (citing Ex. 1003 ¶¶ 58-59). Thus, we are persuaded that Petitioner has provided sufficient rationale to combine Sudo, Porambo, and TMS320. Upon review of Petitioner’s analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a



reasonable likelihood that it would prevail with respect to claim 8, on the ground that this claim would have been obvious over Sudo, Porambo, and TMS320.

*G. Claim 8 – Obviousness over Sudo, Krokstad, and TMS320*

Petitioner argues that claim 8 is unpatentable under 35 U.S.C. § 103(a) over Sudo, Krokstad, and TMS320. Pet. 40-41. TMS320 discloses non-volatile memories (ROM and EPROM) in a DSP. *See* Ex. 1008, 6.

Claim 8 recites “a non-volatile storage means for storing a set [sic] performance characteristics.” Petitioner asserts that TMS320’s disclosure of non-volatile memory meets this limitation. At this time, we are persuaded that this assertion is reasonable. Petitioner also asserts that a person of ordinary skill in the art would have considered “the use of a nonvolatile storage means (memory) in a DSP to have been obvious in light of the TMS320 Data Sheet as a convenient way to allow the DSP to retain stored performance characteristics in the event that power was removed from the device.” Pet. 40-41 (citing Ex. 1003 ¶¶ 58-59). Thus, the Petitioner has provided sufficient rationale to combine Sudo, Krokstad, and TMS320. Upon review of Petitioner’s analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claim 8 on the ground that this claim would have been obvious over Sudo, Krokstad, and TMS320.

*H. Claims 14 and 18 – Obviousness over Sudo, Porambo, and Krokstad*

Petitioner argues that claims 14 and 18 are unpatentable under 35 U.S.C. § 103(a) over Sudo, Porambo, and Krokstad. Pet. 48-51.

Claim 14 recites “the controller comprises a connector for removably connecting the programmer to the amplifier.” Petitioner asserts that “[a] person of ordinary skill in the art would have understood that the personal computer would include a connector that removably connects with the RS232 port [of Krokstad]” to allow disconnection of the computer. Pet. 48 (citing Ex. 1003 ¶¶ 76-78). At this time, we are persuaded that this assertion is reasonable. Upon review of Petitioner’s analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claim 14 on the ground that this claim would have been obvious over Sudo, Porambo, and Krokstad.

Claim 18 recites that “said amplifier executes operation according to said at least one of a signal processing function and a signal processing function parameter after said external programmer is disconnected from said amplifier.” Petitioner asserts that “[t]he amplifier [of Krokstad] clearly is designed to operate after the programming computer is removed from the RS232 port because a hearing aid would not be very useful if the wearer had to carry around the personal computer used to program it.” Pet. 50-51. At this time, we are persuaded that this assertion is reasonable. Upon review of Petitioner’s analysis and supporting evidence, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail with respect to claim 18 on the ground that this claim would have been obvious over Sudo, Porambo, and Krokstad.

### III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the petition establishes that there is a reasonable likelihood that Petitioner would prevail with respect to claims 1-15, 18-21, and 23-26 of the '544 patent.

The Board has not made a final determination on the patentability of any challenged claims.

### IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted as to claims 1-15, 18-21, and 23-26 of the '544 patent for the following grounds:

1. claims 1-6, 9-13, 15, and 19 are unpatentable under 35 U.S.C. § 103 over Sudo and Porambo;
2. claims 1-6, 9-13, 15, 19, 21, and 25 are unpatentable under 35 U.S.C. § 103 over Sudo and Krokstad;
3. claims 7, 20, 21, 23, 24, 25, and 26 are unpatentable under 35 U.S.C. § 103 over Sudo, Porambo, and APA;
4. claims 7, 24, and 26 are unpatentable under 35 U.S.C. § 103 over Sudo, Krokstad, and APA;
5. claim 8 is unpatentable under 35 U.S.C. § 103 over Sudo, Porambo, and TMS320;
6. claim 8 is unpatentable under 35 U.S.C. § 103 over Sudo, Krokstad, and TMS320; and

7. claims 14 and 18 are unpatentable under 35 U.S.C. § 103 over Sudo,  
Krokstad, and Porambo;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(d) and 37 C.F.R.  
§ 42.4, notice is hereby given of the institution of a trial; the trial is commencing  
on the entry date of this decision; and

FURTHER ORDERED that the trial is limited to the grounds identified  
above and no other grounds are authorized.

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