

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASKELADDEN, L.L.C.,

Petitioner,

v.

OHVA, INC.,

Patent Owner.

Case No. IPR2023-00921
U.S. Patent No. 9,679,286

PATENT OWNER'S RESPONSE

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I. INTRODUCTION

U.S. Patent No. 9,679,286 (the “’286 Patent”) claims an improved apparatus and method for enabling secure network-based transactions. *See, e.g.*, EX1001, Abstract. These include “ways of using hardware and/or software to provide secure authentication over a network for users and user groups.” *Id.*, 3:55-57. More specifically, the ’286 Patent discloses using a “modulated sound consisting at least in part of an identification number and a session key” to authenticate transactions. *Id.*, 3:59-61. The apparatus and method of authentication claimed by the ’286 Patent may be applied to “a transaction portal authenticating transactions for a group of web merchants or banks” or to “any server adapted to handle secure transactions for individuals.” *Id.*, 5:35-40.

Thus, the Challenged Claims 1-4 recite specific improvements for authenticating transactions, including, in independent Claims 1 and 3:

- ***[1.1.3] the card reader providing the transaction data accepted from the output interface of the transaction card to the output pin, and hence to the microphone port, as an analog variable voltage audio signal;***
- ***[1.3.1] wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data***
- ***[3.1.1] accepting transaction data from a transaction card at an input interface of a card reader having an output pin as a part of the card reader,***
- ***[3.3] converting the analog variable voltage audio signal received at the microphone port to the transaction data as digital data;***

The Challenged Claims 1-4 trace their priority to U.S. application Ser. No. 14/524,842, filed Oct. 27, 2014 (the “’842 Application”), which was a continuation of U.S. application Ser. No. 11/533,030, filed Sep. 19, 2006 (the “’030 Application”), which in turn claims priority to a U.S. provisional patent application Ser. No. 60/719,273, filed on Sep. 20, 2005 (the “’273 Application”).

Petitioner, realizing that its references all date from the 2013-2014 timeframe, contests Patent Owner’s claim to priority and argues that Claims 1-4 are not entitled to an early priority date because, according to Petitioner, they are not adequately supported by the written description of earlier applications. Rather, Petitioner asserts that Claims 1-4 are only entitled to the March 3, 2015 priority date of the application that led to the ’286 Patent, Application No. 14/636,674 (“the ’674 Application”). Petitioner asserts that certain revisions to the “Brief Summary of the Invention” section of the specification made during prosecution of the ’674 Application were “new matter” entitled to the March 3, 2015 priority date and that these are the only portions of the specification that support Claims 1-4. Pet. 14-15. Petitioner also asserts that the Examiner raised this issue during prosecution and that the Patent Owner failed to contest it.

Thus, if Patent Owner is right that the ’286 Patent claims priority to the ’030 Application filed in 2006, and/or to the ’273 Application filed in 2005, the validity of the Challenged Claims must be confirmed. Notably, although Patent Owner raised

this issue at the institution stage, the Board did decide the issue of priority, as it initially denied institution on a separate ground. Paper 11 at 18. Only subsequently, when Petitioner requested rehearing, did the Board decide to institute this IPR, but the Board viewed the issue regarding the effective filing date of the Challenged Claims as a “factual dispute regarding the significance of the ’030 application’s disclosures,” stating that “we view that dispute as best resolved through trial.” Paper 15 at 10. As such, the issue of priority has not yet been resolved.

As an initial matter, contrary to Petitioner’s representations, Patent Owner *did* contest this issue during prosecution. EX2003 [Declaration of Donald R. Boys], at ¶¶ 1-5. During an interview with Patent Owner’s counsel Donald R. Boys (“Mr. Boys”), the Examiner indicated that a formal response would not be necessary. *See id.*, ¶ 3. The Examiner invited the applicant to submit the proposed claim amendments informally, along with a summary of the applicant’s rationale regarding the priority date issue. *See id.* Mr. Boys apparently faxed to the Examiner a Word document, entitled “fax.docs,” recently located by Mr. Boys. *See* EX2004.

This document shows that the applicant *did* discuss with the Examiner the priority and alleged “new matter” issues, directing the Examiner’s attention to portions of the ’030 application (pg. 19, ll. 19-27 and pg. 12, ll. 25-27) corresponding to 11:13-20 and 7:52-57 of the ’286 Patent. *See* EX2004 at 4. Applicant specifically pointed out that “[o]ne with skill in the art clearly understands that the analog

variable voltage signal is not transmitted on a wireless network and MUST be digitized.”¹ *Id.*

Thereafter, the Examiner issued a Notice of Allowance and—notably—no longer asserted that the ’286 Patent was only entitled to the March 3, 2015 priority date or that it was a “continuation in part.” EX1002 at 33-38. Rather, the Examiner issued the ’286 Patent, which on its face states that it is a “continuation” of the ’842 Application, which was a continuation of the ’030 Application filed on Sep. 19, 2006. EX1001 at 1-2. At a minimum, Challenged Claims 1-4 are entitled to the Sep. 19, 2006 priority date of the ’030 Application.

In light of this key aspect of the prosecution history, Petitioner’s spurious attempt to deprive the Challenged Claims 1-4 of the early priority date to which they are rightfully entitled is without merit. Indeed, Petitioner’s strained argument against an early priority date for Challenged Claims 1-4 largely depends on Petitioner’s *in haec verba* approach to the written description. Thus, Petitioner focuses on particular words, feigns difficulty in finding them in the specification of earlier applications,

¹ Notably, the Notice of Allowability states that it is “responsive to 3/29/17,” which is the date that “fax.docs” filed prepared by Mr. Boys bears on its coversheet. EX1002 at 32; EX1004 at 1. Further, it states that “[a]uthorization for this examiner’s amendment was given in an interview with Donald Boys (Reg [sic] no. 35,074) on 3/31/17.” *Id.* at 33. Moreover, it contains an Examiner’s Amendment entering the proposed amendments from the document located by Mr. Boys. *Compare* EX2004 at 5-6, *with* EX1002 at 33-35.

and then simply concludes that the claims lack written description support.

In contrast with Petitioner’s approach, however, it is well-established that “a prior application need not contain precisely the same words as are found in the asserted claims.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008). Rather, the “hallmark of written description is disclosure,” *Novartis Pharms. Corp. v. Accord Healthcare, Inc.*, 38 F.4th 1013, 1017 (Fed. Cir. 2022), and whether “one skilled in the art, reading the original disclosure, must immediately discern the limitation at issue in the claims.” *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000). Even “missing descriptive matter” may be adequately disclosed for written description purposes if it is “necessarily” “present in...specification such that one skilled in the art would recognize such a disclosure.” *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998).

As demonstrated *infra*, Petitioner’s hunt for particular words and attempt to suggest inadequacies in the written description of the specification of the ’842 Application and ’030 Application is belied by the substance of the disclosure therein. Indeed, once the substance of that disclosure is understood from the perspective of the skilled artisan, it is clear that the Challenged Claims 1-4 are entitled to, at the very least, the Sep. 19, 2006 priority date of the ’030 Application. Based on that determination alone, the Board may deny the Petition, since all of Petitioner’s references post-date this priority date, and do not qualify as prior art under 35 U.S.C.

§ 102.

Even if Petitioner's references *were* prior art, they cannot render obvious the challenged Claims 1-4, because they fail to teach at least the following limitations of independent Claims 1 and 3:

- *[1.1.3] the card reader providing the transaction data accepted from the output interface of the transaction card to the output pin, and hence to the microphone port, as an analog variable voltage audio signal*
- *[1.3.1] wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data*
- *[3.3] converting the analog variable voltage audio signal received at the microphone port to the transaction data as digital data*

All of Petitioner's proposed grounds rely solely on "Cho" reference (U.S. Patent 9,330,385) as rendering the foregoing limitations obvious, yet Cho completely fails to disclose both the claimed "transaction data" and the "analog variable voltage audio signal."

Whether Cho teaches or suggests "transaction data" as used in claim limitations [1.1.3], [1.3.1] and [3.3] was the focus of the Board's decision denying institution, and its subsequent decision to grant Petitioner's Request for Rehearing. On rehearing, the Board conceded that the "term 'transaction data' is only used in the embodiment of Figure 11" and that "the '286 patent distinguishes 'account data' from 'transaction data' in the embodiment of Figure 11," but nevertheless construed "transaction data" "as encompassing any data involved in a transaction, including

account data.” Paper 15 at 7-8 (emphasis added). As argued herein, however, the specification of the ’286 Patent makes clear that “transaction data” is not “account data,” i.e., is not a “ID number, password, authentication information, or session information,” because (among other things) the specification expressly makes clear that “transaction data” is data that is submitted after a new session key is generated using “account data.” Thus “transaction data” cannot include “account data” such as the “ID Number,” which is *already* part of the new session key generated prior to the submission of “transaction data B1-Bn.” EX1001 at 12:34-36.

Cho does not teach or suggest “transaction data” as taught in the ’286 Patent, much less in the context of the broader claim limitations [1.1.3], [1.3.1] and [3.3].

In addition, Cho does not teach or suggest an “analog variable voltage audio signal” as required in claim limitations [1.1.3], [1.3.1] and [3.3]. Although Cho discloses alternating current (AC) voltage being transformed to a direct current (DC) voltage, Cho does not teach or suggest an analog variable voltage audio signal. The DC voltage disclosed by Cho merely provides information about specific characteristics of an acoustic signal, such as its average amplitude or power, but does not capture the complete waveform information. In contrast, an analog variable voltage audio signal directly represents the instantaneous changes in the acoustic signal’s waveform, preserving its frequency content, amplitude variations, and time-domain characteristics. Moreover, Petitioner’s reliance on Cho ignores that voltage,

rather than current-based audio transmission has remained the dominant standard for analog audio signals. Indeed, in contrast with Cho, the only reference to “current” in the ’286 Patent is vis-à-vis the sound card that provides “direct current (DC).” EX1001 at 7:29.

In sum, Petitioner simply has not met its burden to show a reasonable likelihood that any challenged claim of the ’286 Patent is unpatentable.

II. LEGAL PRINCIPLES

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016).

This burden never shifts to the Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015); *Impact Selector Int’l, LLC v. Petromac IP Ltd.*, IPR2019-01660, Paper 12, 6 (P.T.A.B. Apr. 17, 2020) (“It is Petitioner’s burden to prove unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner.”). This is especially true when the Petition raises only obviousness grounds:

Where, as here, the only question presented is whether due consideration of the four *Graham* factors renders a claim or claims obvious, no burden shifts from the patent challenger to the patentee. This is especially true where the only issues to be considered are what the prior art discloses, whether there would have been a motivation to combine the prior art, and whether that combination would render the

patented claims obvious.

In re Magnum Oil Tools Int'l, Ltd., 829 F.3d 1364, 1376 (Fed. Cir. 2016).

The petition must “identif[y], in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 312(a)(3). In addition, “the information presented in the petition” “[must] show[] that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *Magnum Oil*, 829 F.3d at 1380 (holding that the Board cannot “raise, address, and decide unpatentability theories never presented by the petitioner”). “[T]he petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.” 35 U.S.C. § 316(e).

In evaluating whether a patent satisfies the written description requirement for purposes of claiming priority, the disclosure must reasonably convey to skilled artisans that the inventor possessed the claimed invention as of the filing date. *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). The written description “test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art.” *Id.* “One does that by such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.” *Lockwood v. Am.*

Airlines, Inc., 107 F.3d 1565, 1572 (Fed. Cir. 1997). “The invention is, for purposes of the ‘written description’ inquiry, whatever is now claimed.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991). “In order to satisfy the written description requirement, the disclosure as originally filed does not have to provide *in haec verba* support for the claimed subject matter at issue.” *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000); *see also PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306–07 (Fed. Cir. 2008) (explaining that § 112, ¶ 1 “requires that the written description actually or inherently disclose the claim element”).

The petitioner also has the initial burden of production to show that an asserted reference qualifies as prior art under 35 U.S.C. § 102. *Dynamic Drinkware*, 800 F.3d at 1378–79. Once the petitioner has met that initial burden, the burden of production shifts to the patent owner to argue or produce evidence that either the asserted reference does not render the challenged claims unpatentable, or the reference is not prior art. *Id.* at 1379–80 (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008)). Once the patent owner has met that burden of production in demonstrating, for example, entitlement of the challenged claims to a filing date that antedates the asserted reference, the burden of going forward again shifts to the petitioner to persuade the Board that the challenged claims are not entitled to the benefit of the earlier filing date. *See Tech Licensing Corp.* at 1328

(describing burdens in the context of an invalidity challenge in district court); *Guest Tek Interactive Ent. Ltd. v. Nomadix, Inc.*, No. IPR2019-01191, 2019 WL 7212601, at *6 (P.T.A.B. Dec. 27, 2019).

III. ARGUMENT

The Petition raises Grounds 1-4 alleging obviousness of claims 1-4 of the '286 Patent. All of Petitioner's Grounds rely on Cho, and all of Petitioner's reference (including Cho) date from the 2013-2014 timeframe.

As argued below, since the Challenged Claims 1-4 are entitled to at least the Sep. 19, 2006 priority date of the '030 Application, none of Petitioner's references qualifies as prior art and the Petition should be denied. The Board need not even determine whether the claims are entitled to the even earlier priority date of the provisional application, since the Sep. 19, 2006 priority date of the '030 Application is sufficient to antedate all of Petitioner's references.

Moreover, since Cho fails to teach or suggest the claimed "transaction data" and "analog variable voltage audio signal" as required in claim limitations [1.1.3], [1.3.1] and [3.3], and Petitioner relies solely on Cho for those limitations, Petitioner's Grounds 1 and 3 must fail (as must Grounds 2 and 4 which challenge dependent claims 2 and 4, respectively).

A. POSITA

Patent Owner does not materially dispute Petitioner's definition of a POSITA. Pet., 7.

B. Claim Construction

The Board can deny the Petition without engaging in claim construction because the Petition is deficient under any construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

C. Petitioner's References Are Not Prior Art Because Claims 1-4 of the '286 Patent Are Fully Supported by the Written Description of the '030 Application and Therefore Entitled to a Priority Date of At Least September 19, 2006.

Petitioner has submitted the following four references in support of its grounds of unpatentability, all from 2013-2014 timeframe:

1. U.S. Patent 9,330,385 ("Cho") (EX1005); filed August 29, 2013; issued May 3, 2016.

2. U.S. Patent Publication 2013/0185208 ("Aaron") (EX1006); published July 18, 2013.

3. U.S. Patent Publication 2013/0124606 ("Carpenter") (EX1008); published May 16, 2013.

4. U.S. Patent Publication 2014/0008432 to de Geer et al. ("de Geer") (EX1007); published January 9, 2014.

On its face, the '286 Patent claims priority to a series of applications pre-dating Petitioner's references by nearly a decade, namely to U.S. application Ser. No. 14/524,842 ("the '842 Application"), filed Oct. 27, 2014, which was a continuation of U.S. application Ser. No. 11/533,030 ("the '030 Application"), filed Sep. 19, 2006, which claims priority to a U.S. provisional patent application Ser. No. 60/719,273 ("the '273 Application") filed on Sep. 20, 2005. EX1001 at 1-2.

Given that the '286 Patent claims priority to at least Sep. 19, 2006 on its face, whereas Petitioner's references all date from 2013-2014, Petitioner devotes a great deal of its Petition to arguing that the challenged claims of the '286 Patent lack written description support in any of the earlier-filed applications and are not entitled to their early priority dates. According to Petitioner, the '286 Patent is entitled only to priority as of the March 3, 2015 filing date the application that led to the '286 Patent—Application No. 14/636,674 ("the '674 Application")

As such, Petitioner's entire petition stands or falls with its argument for lack of written description and against Patent Owner's claim to priority.

Petitioner does not contest that "the '286 Patent contains the same specification as the '842 Application (filed [in] 2014) and '030 Application (filed in 2006), except for the replaced 'Brief Summary of the Invention' section and minor typographical corrections to a small number of words." Pet. at 18. Thus, if the Challenged Claims 1-4 are supported by the written description of the '030

application and therefore entitled to its priority date—September 19, 2006—*none* of Petitioner’s references qualify as prior art and the Petition must be denied in its entirety. *Dynamic Drinkware*, 800 F.3d at 1378–79. Thus, as indicated above, the Board need not even resolve the issue of written description in the even earlier provisional ’273 Application. If the Challenged Claims 1-4 have written description support in the ’030 Application and are entitled to its priority date of Sep. 19, 2006, then ***none of Petitioner’s references are prior art and the Petition must be denied.***

Accordingly, as argued herein, Petitioner has failed to meet its burden to show that its references qualify as prior art under 35 U.S.C. § 102, and its Petition must be denied.

D. Challenged Claims 1-4 of the ’286 Patent Are Fully Supported by the Written Description of the ’030 Application

Petitioner argues that two limitations of independent Claim 1, and two similar limitations in independent Claim 3, lack written description support in any of the earlier applications to which the ’286 Patent claims priority:

- ***[1.3.1] wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data,***
- ***[1.3.2] establish direct data exchange between the smart telephone and a second Internet-connected server and facilitate transactions by a financial institution, or purchases from an online-merchant, using the transaction data.***
- ***[3.3] converting the analog variable voltage audio signal received at the microphone port to the transaction data as digital data;***

- ***[3.4] establishing direct data exchange with an Internet-connected server providing services to a financial institution or an on-line merchant by executing coded instructions on a processor in the smart telephone; and facilitating transactions with the financial institution or purchases from the on-line merchant using the transaction data.***

Pet. at 17. According to Petitioner, “[s]upport for limitations [1.3.1]-[1.3.2], and [3.3]-[3.4] can only be found in the ‘Brief Summary of the Invention’ section of the ’286 Patent” which was added in 2015.

During prosecution, Patent Owner’s counsel, Mr. Boys, discussed the issue of priority with the Examiner. EX2003 at ¶ 3. Mr. Boys apparently faxed to the Examiner a Word document, entitled “fax.docs,” directing the Examiner’s attention to portions of the ’030 application (pg. 19, ll. 19-27 and pg. 12, ll. 25-27) corresponding to 11:13-20 and 7:52-57 of the ’286 Patent. *See* EX2004 at 4.

However, the Petition provides little basis for assuming that the entirety of the remaining specification deriving from the ’030 Application filed Sep. 19 2006 somehow provides no support for limitations [1.3.1]-[1.3.2] or [3.3]-[3.4]. Petitioner argues that “the concepts of ‘conversion of’ or ‘converting’ analog data to digital data appear nowhere else” other than the Brief Summary of the Invention section “and ‘digital’ only appears in the context of a ‘personal digital assistant’ (PDA).” Pet. at 20. Petitioner further argues that “[w]hile the ’286 Patent discusses modulation of an encoded bit flow ‘using a frequency-shift keying (FSK)

modulation technique,’ the discussed technique ‘creat[es] an analog waveform’ to generate an audible sound” and “occurs on a PC...or a server, not in a smart telephone.” Pet. at 20-21. Likewise, Petitioner argues that the term “computing appliance” somehow cannot encompass a “smart telephone.” Pet. at 21-27.

However, the written description of the ’286 Patent—and the ’030 application to which it traces priority—amply supports limitations 1.3.1-1.3.2 as well as 3.3-3.4.

[1.3.1] wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data,

The ’286 Patent, and the ’030 application, disclose “coded instructions” that are “executed on a processor in a smart telephone.” For example, they disclose that “a modulated audio signal is generated by a sound-generating applet installed on and executable from mobile device 701, which is a smart phone in this example.” EX1001, 9:45-27, Fig. 7; EX1015 at 11. A POSITA would readily recognize that an “applet” is a form of software that is necessarily comprised of “coded instructions.” Indeed, the specification refers to a “software applet.” EX1001, 13:60; EX1015 at 15.

The ’286 Patent, and the ’030 application, disclose a “processor in” a “smart telephone.” For example, Fig. 4 discloses a block diagram illustrating basic electronics 400 of a key jack sound pass generator. EX1001, 7:11-13; Fig. 4; EX1015 at 8. The specification states expressly that the “[a]s a mobile device key

jack 400 may be used at virtually any PC station or if so adapted **any mobile** device capable of a bi-directional network connection.” EX1001, 7:52-55; EX1015 at 9. The “[p]rocessing unit 409” disclosed in Fig. 4 “may be a small microprocessor.” EX1001, at 7:34-35; EX1015 at 9. Thus, a POSITA would readily recognize that the processor disclosed in Fig. 4 discloses a “processor in” a mobile device such as a “smart telephone.” EX2004 at 4.

The '286 Patent, and the '030 application, disclose “convert[ing] the analog variable voltage audio signal received at the microphone port to the transaction data as digital data.” During prosecution, Patent Owner explained “ ‘030 pg. 18-27 clearly teaches an analog variable voltage signal, as any person with skill understands after reading said teaching.” EX2004 at 3-4 (citing EX. 1012 at 338-345, corresponding to EX.1015 at 12-17). In the detailed description, different operations are described for entering data to a computerized appliance, including a smart telephone, on a microphone port. It is notoriously well-known in the art that a microphone port is used for audio input, which is well-known to be in the form of an analog variable voltage. Thus, for example, the '286 Patent, and the '030 application, disclose a “soft token” whose “token values are expressed as a **modulated sound pass signal**.” EX1001, 13:39 (emphasis added); EX1015 at 15. The “generated sound or sound file or sound pass...**is** the token.” EX1001, 14:65-66 (emphasis added); EX1015 at 16. A POSITA would readily recognize that the

“token” or “sound pass signal” an “analog variable voltage audio signal.” The ’286 Patent, and the ’030 application, disclose receiving the analog audio signal at a microphone port, as they disclose “play[ing] the modulated sound into the microphone input of the PC acoustically using the speaker system of the mobile device.” EX1001, 11:66-12:1; EX1015 at 13. Further, the specification and Fig. 14 disclose the “applet writ[ng] the token file in encrypted form to the root drive on the client PC.” EX1001, 14:43-45; EX1015 at 16. A POSITA would readily recognize that “writ[ing] the token file”—a “generated sound or sound file or sound pass”—is clearly “convert[ing] the analog variable voltage audio signal...to the transaction data as digital data,” since “writing” the analog audio signal necessarily involves its conversion into the digital form of a software file.

As one example, Fig. 4 illustrates a chip 401 comprising several electronic components, one of which is a[n] EEPROM. The description states: ‘A sound pass file may be stored on chip 400 in EEPROM 407 for use as a sound pass token. The file may be any suitable compression format including MP4, Wav, AVI, or others. Modem 406 and - 12 - oscillator 405 generate the signal in the form of sine waves that are demodulated by a modem provided in the applet on the user’s PC.’ Clearly this token is passed through tip-ring 402 plugged into a microphone port. As another example, Fig. 5 illustrates a key jack signal generator with the circuitry of Fig. 4, for plugging directly into a microphone port. The description states: ‘A user may insert

device 501 into a microphone input and depress button 505 to close switch 404 described further above thereby activating the modem to generate and modulate the sound pass signal. The sound pass signal contains the ID number and session key embedded in the modulated sound. As a third example, Fig. 6 illustrates a smart card 601 coupled to a card reader 602. The description states: ‘Diagram 600 includes a smart card 601 with the sound pass chip embedded therein. The card plugs into card reader 602, which in turn is plugged into the microphone input of the host commuting appliance or other line input capable of carrying sound and directly or indirectly connected to the sound card on the computing appliance such as a PC. EX1001 at 7:35-42; 8:9-14; 8:29-35, Figs. 4-6; and EX1015 at 9-10.

[1.3.2] establish direct data exchange between the smart telephone and a second Internet-connected server and facilitate transactions by a financial institution, or purchases from an online-merchant, using the transaction data.

The '286 Patent, and the '030 application, disclose “establish[ing] direct data exchange between the smart telephone and a second Internet-connected server and facilitat[ing] transactions by a financial institution, or purchases from an online-merchant, using the transaction data.” For example, they disclose a “token [that] is not a secure chip but a software file that works with a server driver (dll) and a client applet.” EX1001, 13:35-36 and Fig. 14; EX1015 at 15. A POSITA would readily understand that the “client” could be a “mobile device” or “smart phone,” as the specification elsewhere discloses an “applet installed on and executable from mobile

device 701, which is a smart phone in this example.” EX1001, 9:45-27, Fig. 7; EX1015 at 11. The specification discloses a “direct data exchange” between a client and server (including a smart telephone), including for example that “the authentication server passes the token contents as clear text string along with a software applet to the client.” EX1001, 13:59-61 and Fig. 14; EX1015 at 15.

The direct data exchange is clearly to facilitate transactions by a financial institution or purchases from an on-line merchant using the transaction data. For example, “Server 201 may be any type of server including a transaction portal authenticating transaction for a group of web merchants or banks. It may also be any server adapted to handle secure transactions for individuals.” EX1001, 5:36-39 and Fig. 2; EX1015 at 7. Moreover, “the server calls a driver or dll at the server or in some connected machine and receives randomly written token contents that provide the basis for future client access of one or of more than on account held for the client by one or more services” and the “token issuer and the authentication entity is a third party to the transaction between a client and a service organization maintaining an account for the client.” EX1001, 13:51-58 and Fig. 14; EX1015 at 15.

As such, it is clear that aspects of the '286 Patent, and the '030 application, tracing their priority to at least September 19, 2006, readily disclose limitations [1.3.1]-[1.3.2], as well as [3.3]-[3.4], which are substantially similar.

Moreover, contrary to Petitioner’s arguments, a POSITA would readily recognize that a “smart telephone” can be a “computing appliance.” For example, the specification discloses that a “computing appliance” is not necessarily coextensive with personal computers, referring to “a PC or other computing appliance.” EX1001, 7:66-67; EX1015 at 9. Similarly, the specification states that “any hardware device capable of playing a sound may be incorporated as a sound pass token.” EX1001, 6:53-55; EX1015 at 8. *See also* EX2004 at 4.

Accordingly, as shown in the specification of the ’286 Patent, and the ’030 application, the claim limitations referred to by Petitioner are amply supported by the written description and are entitled a priority date of at least September 19, 2006—long before all of Petitioner’s references. For this reason alone, the Board should affirm the Challenged Claims 1-4.

E. Grounds 1-4: Petitioner Fails to Demonstrate That its References Render the Challenged Claims Obvious

1. The Petition Fails to Establish that Cho Teaches or Suggests “Transaction Data” as Claimed in the ’286 Patent

For each of Grounds 1 and 3, Petitioner relies solely on Cho as allegedly disclosing “transaction data” as claimed in Claims 1 and 3, in claim limitations [1.1.3], [1.3.1] and [3.3]. Properly construed, however, Cho fails to teach or suggest “transaction data” as claimed in claim limitations [1.1.3], [1.3.1] and [3.3], and Petitioner’s Grounds 1 and 3 must fail. Since Grounds 2 and 4 challenge dependent

claims 2 and 4, respectively, and do not address this deficiency of Cho, they two must be denied.

Claim limitations [1.1.3], [1.3.1] and [3.3] each require “transaction data,” and [1.3.1] and [3.3] require conversion of an “analog variable voltage audio signal received at the microphone port **to the transaction data** as digital data”:

- *[1.1.3] the card reader providing the transaction data accepted from the output interface of the transaction card to the output pin, and hence to the microphone port, as an analog variable voltage audio signal*
- *[1.3.1] wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data*
- *[3.3] converting the analog variable voltage audio signal received at the microphone port to the transaction data as digital data*

However, Petitioner can nowhere point to “transaction data” in Cho, much less conversion of the audio signal “to the transaction data,” instead referring vaguely only to “account information” in Cho. As Patent Owner argued in its preliminary response, the ’286 Patent “transaction data (b1-Bn)” is involved in the generation and matching of hash codes, such that the “server hash operation occurs after the user has entered his or her PIN code and the instant transaction data for that session.” EX1001, 11:38-50 and Fig. 11. “Otherwise, the server would not have any knowledge of Bi-Bn and could not match the client hash.” *Id.*

The Board initially agreed with Patent Owner in this regard, denying

institution on this ground. However, on rehearing, the Board reversed its position. Paper 15 at 5-8, 15-16.

On rehearing, the Board conceded that the “term ‘transaction data’ is only used in the embodiment of Figure 11” and that “the ’286 patent distinguishes ‘account data’ from ‘transaction data’ in the embodiment of Figure 11,” but nevertheless construed “transaction data” “as encompassing any data involved in a transaction, including account data.” Paper 15 at 7-8 (emphasis added). However, Patent Owner respectfully submits that the Board’s position on rehearing—that “transaction data” should be construed broadly enough to encompass “account data”—is incorrect.

As an initial matter, Federal Circuit caselaw “instructs that different claim terms are presumed to have different meanings.” *MicroStrategy Inc. v. Bus. Objects Americas*, 238 F. App’x 605, 609 (Fed. Cir. 2007) (citing *CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings.”)); *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) (“[T]he use of two terms in a claim requires that they connote different meanings”).

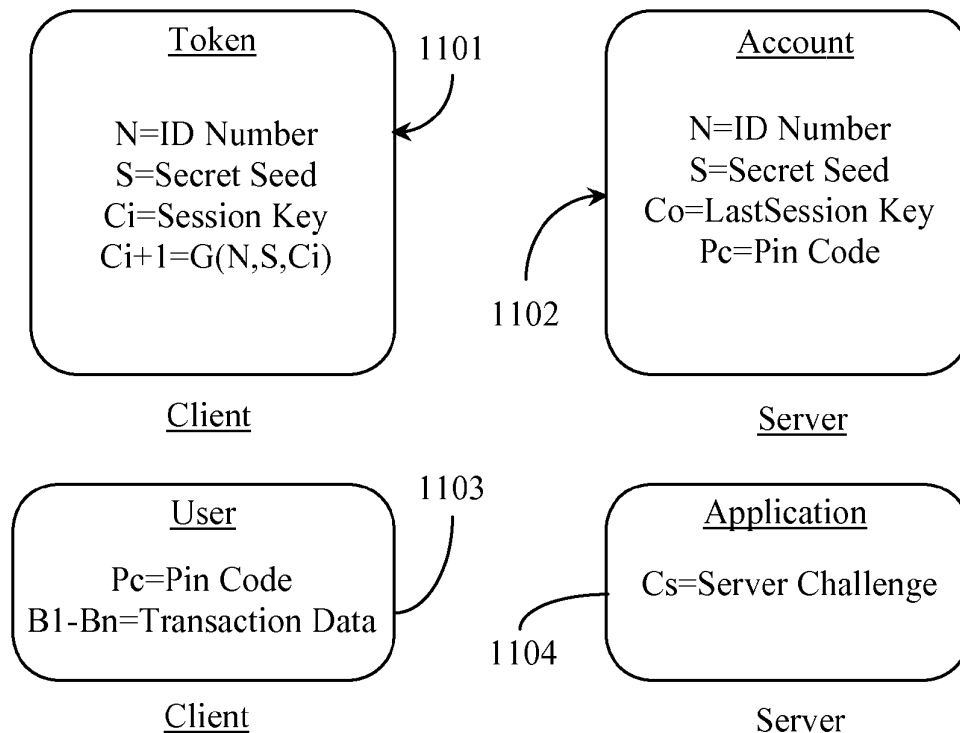
Thus, it should be presumed that “transaction data” carries a different meaning than “account data.”

More importantly, the construction of “transaction data” used by the Board on rehearing is not supported. Acknowledging that the ’286 patent distinguishes “account data” from “transaction data” in the embodiment of Figure 11, the Board’s decision on rehearing states that “‘transaction data’ is submitted by the user to perform a series of banking transactions after manually entering a PIN code, whereas the ‘account data’ is stored on the server, and the token information is accepted from the smart card’s embedded token, i.e., the output interface of the transaction card.” Paper 15 at 8. The Board then stated that “the claimed transaction data that is accepted from an output interface of a transaction card...comprises data stored on and read from a card, such as an ID number, password, authentication information, or session information, that can be used to a facilitate a transaction.” *Id.* (emphasis added)

The Board seems to be (1) equating “token information” (i.e., the “token information accepted from the smart card’s embedded token”) with “account information,” and then (2) maintaining that “transaction data” includes “token information” because the token is “accepted from the output interface of the transaction card.” *Id.* By this logic, the Board concludes that “transaction data...comprises data stored on and read from a card, such as an ID number, password, authentication information, or session information, that can be used to

facilitate a transaction.” *Id.* This construction is not supported by the specification, however. Figure 11 (shown below), the only place that transaction data is disclosed, expressly distinguishes between “transaction data” from both “token” information (1101) and “account data” (1102).

Indeed, the specification never equates “token” information to “transaction data” and, Figure 11 distinguishes “B1-Bn=Transaction Data” from the “token” as much as it distinguishes it from “account data.” EX1001, Fig. 11 at 1103, 1101, 1102. The specification explains that the “token generates the new session key expressed as $C_{i+1}=G(N,S,C_i)$,” with N, S, and C_i referring to “ID Number, Secret Seed, and Session Key” as illustrated in Figure 11. ’286 Patent, 12:32-35; Fig. 11. The specification further explains that the “user may enter a PIN code (P_c) and then



may perform a series of banking transactions by submitting transaction data B1-Bn.”

Id. at 12:34-36 (emphasis added). The specification’s use of the phrase “and then” to differentiate between the PIN code (an example of “account data”) and “transaction data” makes clear that “transaction data” is to be construed differently from “account data.” *See, e.g., Perfect Surgical Techniques, Inc. v. Olympus Am., Inc.*, 841 F.3d 1004, 1013 (Fed. Cir. 2016) (“[T]he specification’s separation of the terms perforated and passages with the disjunctive phrase ‘or otherwise’ makes clear that the patentee intended that the term ‘perforated’ is not the same as ‘passages.’ ”)

In other words, the “transaction data B1-Bn” is submitted **after** a new session key (which includes the “ID Number,” i.e., a form of “account data”) is generated. As such, “transaction data” cannot include “account data” such as the “ID Number,” which is **already** part of the new session key generated prior to the submission of “transaction data B1-Bn.” EX1001 at 12:34-36.

Further, a skilled artisan would recognize that it makes no sense for “transaction data” to include an “ID Number,” when the “ID Number” has already been expressed in the generation of a new session key. Nor does it make sense for “transaction data” to include an “ID Number” when the PIN code has already been entered. While the Board seems to be equating “token” information to “account data,” nowhere does the specification equate “transaction data” to the “token” parameters included in the new session key. Quite the opposite—the specification

discloses that transaction data is submitted *after* a new session key containing “token” parameters is generated.

Accordingly, “transaction data” cannot be equated with “account data,” i.e., with the “ID number, password, authentication information, or session information” because the specification expressly makes clear that “transaction data” is submitted after a new session key is generated using “account data.”

In this regard, construing “transaction data” differently from “account data” is not importing a limitation from the specification. Rather, it merely recognizes, as the Federal Circuit did in *Trintec*, that where the specification does not expressly define claim terms, it is proper to recognize that “[t]he two terms, however, have distinct meanings” in part because “the specification treats the two terms differently.” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1296 (Fed. Cir. 2002) (emphasis added). Thus, “transaction data” as used in the specification is not merely a non-limiting, exemplary embodiment. Rather, “transaction data” must be construed in light of the specification, where it makes no sense to treat “transaction data” and “account data” interchangeably. *Chi. Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1369 (Fed. Cir. 2012) (“Nothing in the Patent suggests that ‘storing’ and ‘applying’ are used interchangeably in reference to allocating parameters.”).

Cho simply does not teach or suggest “transaction data” as taught in the ’286

Patent, much less to an audio signal being converted “to the transaction data as digital data” in the context of the broader claim limitations [1.1.3], [1.3.1] and [3.3].

2. The Petition Fails to Establish that Cho Teaches or Suggests the “Analog Variable Voltage Audio Signal” as Claimed in the ’286 Patent

Cho also does not teach or suggest the claimed “analog variable voltage audio signal” as required by claim limitations [1.1.3], [1.3.1] and [3.3]. Cho discloses an “first analog signal to which a first digital signal is converted.” EX1005 at 3:20-22. However, an “analog signal” is not the same as an “analog variable voltage audio signal.” Cho, at most, discloses transforming the “alternating current (AC) voltage of an acoustic signal, which is transmitted from client device 110, to a direct current (DC) voltage and boosts the direct current voltage.” EX1005 at 7:59-62.

A PHOSITA would recognize important differences between alternating current (AC) voltage of an acoustic signal that is transformed into a direct current (DC) voltage and the claimed “analog variable voltage audio signal.” In a system in which, like Cho, the alternating current (AC) voltage is transformed to a direct current (DC) voltage, the acoustic signal is converted into an electrical signal. The resulting electrical signal is an AC voltage that represents only specific, static characteristics of the acoustic signal. When this AC voltage is transformed into a DC voltage using a circuit, the purpose is usually to extract specific information from the acoustic signal, such as its amplitude or power level, as in Cho where the voltage

is boosted.

The resulting DC voltage provides a static representation of only some characteristics of the acoustic signal, such as its average amplitude or power, rather than the instantaneous changes in the audio waveform. It does not provide information about how the signal changes over time. The DC voltage level remains constant unless the acoustic signal's characteristics change significantly. This DC voltage may be used for various purposes, such as controlling the gain of an amplifier, triggering events based on sound level thresholds, or providing a visual indication of the signal strength. Even a boosted DC voltage still represents a specific characteristic of the acoustic signal and does not directly correspond to the original audio waveform.

In contrast, the claimed “analog variable voltage audio signal” is a ***direct electrical representation of the acoustic signal***. The voltage varies continuously over time, closely tracking the changes in the audio waveform. The voltage signal maintains the original frequency content and relative amplitude variations of the acoustic signal.

While the DC voltage representation provides information about specific characteristics of an acoustic signal, such as its average amplitude or power, it does not capture the complete waveform information. In contrast, an “analog variable voltage audio signal” directly represents the instantaneous changes in the acoustic

signal's waveform, preserving its frequency content, amplitude variations, and time-domain characteristics. This allows for the accurate reproduction and processing of the original audio signal.

The Petition treats the “analog signal” in Cho as if it were synonymous with the claimed “analog variable voltage audio signal,” ignoring the terms “variable voltage.” However, a PHOSITA would recognize that the DC voltage disclosed in Cho is not “variable voltage” and provides only a static representation of the acoustic signal. By contrast, the “analog variable voltage audio signal” of the ’286 Patent varies continuously over time.

As such, Cho does not teach or suggest the claimed “analog variable voltage audio signal” of limitations [1.1.3], [1.3.1] and [3.3], and the Challenged Claims 1-4 should be confirmed.

3. Petitioners’ Declaration Testimony Repeats the Petition’s Unsupported Conclusions

Even considering the Petition’s accompanying declaration testimony, it too is conclusory regarding the references’ alleged disclosure. EX1003, ¶¶ 115-156; 171-199; *Harmonic*, 815 F.3d at 1363 (“Harmonic’s expert testimony ... is equally unavailing, adding nothing beyond the conclusory statements in Harmonic’s petition.”). The declaration testimony fares no better than the Petition because “[the expert] cites no evidence and provides no analysis to support [his] conclusion.”

Deeper, IPR2018-01310, Paper 7, 27.² For example, Petitioner’s expert never explains why an “analog signal” in Cho can be equated to the claimed “analog variable voltage audio signal. Nor does Petitioner’s expert provide any examples of “transaction data” in Cho other than the “account data” that cannot be encompassed within any proper construction of “transaction data.”

IV. CONCLUSION

For the foregoing reasons, Patent Owner respectfully submits that the Board should deny the Petition.

Dated: June 7, 2024

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² See also 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); Patent Trial and Appeal Board Consolidated Trial Practice Guide (November 2019), 35-36 (expert testimony cannot replace a prior art disclosure and a petition cannot incorporate expert opinions by reference).

CERTIFICATE OF WORD COUNT

Under 37 C.F.R. § 42.24, the undersigned attorney for the Patent Owner OHVA, Inc., declares that the argument section of this Patent Owner's Response has 7,393 words, according to the word count tool in Microsoft Word.

Dated: June 7, 2024

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I certify that a copy of this Patent Owner's Response is being served by electronic mail on the following counsel of record:

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