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Paper 13
Date: December 1, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

NOBOTS LLC,
Patent Owner.

IPR2022-00940
Patent 9,595,008 B1

Before JOSIAH C. COCKS, LYNNE E. PETTIGREW, and BARBARA A. PARVIS, *Administrative Patent Judges.*

COCKS, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner Google LLC filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1–20 ("the challenged claims") of U.S. Patent No. 9,595,008 B1 (Ex. 1001, "the '008 patent"). Patent Owner Nobots LLC filed a Preliminary Response (Paper 7, "Prelim. Resp."). With our authorization, Petitioner filed a Preliminary Reply ("Pet. Prelim. Reply") (Paper 10) to the Preliminary Response and Patent Owner filed a Preliminary Sur-reply ("PO Prelim. Sur-reply") (Paper 11). We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition 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." 35 U.S.C. § 314(a); *see also* 37 C.F.R § 42.4(a) ("The Board institutes the trial on behalf of the Director.").

A decision to institute under § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In addition, if the Board institutes trial, it will "institute on all grounds in the petition." PTAB Consolidated Trial Practice Guide, 5–6 (Nov. 2019); 37 C.F.R. § 42.108(a); *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require "a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition").

Having considered the arguments and evidence presented by the parties, for the reasons set forth below, we institute *inter partes* review.

A. Related Matters

The parties state that the ’008 patent was asserted in *Nobots LLC v. Google LLC*, Civil Action No. 6:21-cv-01290 (W.D. Tex., Waco Division). Pet. xi; Paper 5, 1.[1] Patent Owner further states that the ’008 patent was asserted in *Nobots LLC v. Google LLC*, No. 1:22-cv-00585 (W.D. Tex., Austin Division). Paper 6, 1. Patent Owner also identifies IPR2022-00941 as a related proceeding. Paper 6, 1.[2]

B. The ’008 Patent

The ’008 patent is titled “Systems, Methods, and Apparatus for Evaluating Status of Computing Device User.” Ex. 1001, code (54). The Abstract of the ’008 patent is reproduced below:

> Methods, systems and apparatus for assessing the likely user status of a client computing device interacting with a server where the computing device is in bi-directional operative communication with the server, wherein the likely user status is one of a human operator or a computer executable program such as a “bot”. By presenting issued data from the server to the client computing device and monitoring at least some of the data generated at the client computing device in response to the issued data, a comparison can be made between the monitored data and model data relating to human interaction with or in response to the issued data. The results of the comparison can lead to a value that represents the likelihood that the monitored data results from human interaction with or in response to the issued data. Modeled data includes, but is not limited to, data indicative of

[1] In its filing of updated mandatory notices, Patent Owner indicates that the noted proceeding is “now terminated.” Paper 6, 1.

[2] The Petition in IPR2022-00941 was filed on the same day as the Petition in the instant proceeding, and involves a related patent (U.S. Patent No. 10,423,885 B2).

> human interaction with a computing environment, whether active or passive.

Id. at code (57).

The ’008 patent further summarizes its disclosure as being “for assessing the likely user status of a computing device interacting with a server where computing device is in bi-directional operative communication with the server wherein the status is one of a human operator or a computer executable program (also referred to herein as a ‘bot’).” *Id.* at 2:13–18.

By way of background, the ’008 patent explains that it became necessary for builders of web sites to develop “tests” to distinguish between human users and bots. The ’008 patent further describes the following:

> Carnegie Mellon University coined the term “CAPTCHA” (Completely Automated Public Turning test to tell Computers and Humans Apart) for these types of tests. A common type of CAPTCHA requires that the user type the letters, digits or characters of a distorted image appearing on the screen. The objective is to create an image that a bot cannot easily parse but that is discernable by a human. Such efforts have been successful in preventing non-adaptive software from recognizing the imaged characters, but people intent on abusing these sites have designed ways to circumvent the CAPTCHA, such as through specially tuned character recognition programs.

Id. at 1:22–33.

“Current CAPTCHA technology is visual or auditory in nature, requiring the human user to answer a test that should be simple to most humans but difficult for non-humans, e.g., bots.” *Id.* at 1:54–56. The ’008 patent describes additional assessment measures, beyond an auditory or visual CAPTCHA test, involving a comparison of “acquired and/or available data relating to the operation of the computing device to suitable models

embodying human user derived data (model data)." *Id.* at 2:18–21. "[A]cquired" data can include "active" data such as "pointing device vector movements," "key stroke combinations," or "time differentials" between "stimulus" (e.g., dialog box displays or radio buttons on a computer screen) and a user response's response to such stimulus. *Id.* at 2:60–3:5. "[A]vailable" data can include "passive" data such as "browser cookies," "destination IP histories," and a computer's "IP address." *Id.* at 3:9–17. Assessment of such data may be used to establish "a probability value" as to whether a particular operator is a human or a bot. *Id.* at 2:18–25.

C. Challenged Claims

Petitioner challenges claims 1–20 of the '008 patent. Claims 1 and 19 are independent claims. Claim 1 is representative and is reproduced below:

> 1. A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:
>
> a) a single user of a client computing device requesting data from a server;
>
> b) the server presenting data issued by the server to the client computing device;
>
> c) monitoring at least some data generated by the user at the client computing device in response to the issued data;
>
> d) comparing the monitored data to model data relating to human interaction with or in response to the issued data; and
>
> e) generating a value that represents a confidence level that the monitored data is a result of human interaction on the client computing device rather than that of an autonomic user with or in response to the issued data.

Ex. 1001, 5:35–5:52.

D. Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 6–18	102/103	Willner[3]
1–18, 20	103	Willner, Kitts[4]
1–18, 20	102/103	O'Connell[5]
1–18, 20	103	O'Connell, Kitts
19, 20	102/103	Kitts

Pet. 1. In addition to the references listed above, Petitioner relies on the Declaration of Daniel P. Lopresti, Ph.D. (Ex. 1003).

II. ANALYSIS

A. Principles of Law

A petition must show how the construed claims are unpatentable under the statutory grounds it identifies. 37 C.F.R. § 42.104(b)(4). Petitioner bears the burden of demonstrating a reasonable likelihood that it would prevail with respect to at least one challenged claim for a petition to be granted. 35 U.S.C. § 314(a).

To establish anticipation under 35 U.S.C. § 102, "all of the elements and limitations of the claim must be shown in a single prior art reference, arranged as in the claim." *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

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[3] U.S. Patent Application Publication No. US 2009/0024971 A1 published Jan. 22, 2009 ("Willner," Ex. 1005).

[4] U.S. Patent Application Publication No. US 2008/0114624 A1 published May 15, 2008 ("Kitts," Ex. 1009).

[5] U.S. Patent Application Publication No. US 2007/023,9604 A1 (published Oct. 11, 2007) ("O'Connell," Ex. 1007).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

At this preliminary stage, we determine whether the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims would have been obvious over the proposed prior art. We analyze the asserted grounds with the above-noted principles in mind.

B. Level of Ordinary Skill in the Art

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends that a person of ordinary skill in the art at the time of the invention of the '008 patent "would have had a bachelor's degree in computer science or a related field with coursework relating to computer

science, plus two years' academic and/or industry experience in computer security. More education could substitute for experience, and vice versa." Pet. 4 (citing Ex. 1003 ¶¶ 36–40). Patent Owner does not dispute this proposed level of skill. Prelim. Resp. 12.

For purposes of this Decision, we adopt Petitioner's proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

C. Claim Construction

We construe claims in the same manner used in a civil action under 35 U.S.C. § 282(b) "including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100(b). When applying that standard, we interpret the claim language as it would have been understood by one of ordinary skill in the art in light of the specification. *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1279–80 (Fed. Cir. 2017). Thus, we give claim terms their ordinary and customary meaning as understood by an ordinarily skilled artisan. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

1. Mis-lettered Steps

At the outset, we observe that both parties identify a disparity in the lettering of steps in dependent claims 6, 11, 12, and 15–18 that is said to

have arisen during prosecution in which claim 1 was amended to add a new step "a)." *See* Pet. 5; Prelim Resp. 15–18. In that regard, claim 1 originally included letters steps "a)" through "d)," but after amendment, those steps became steps "b)" through "e)." *See* Pet. 5; Prelim. Resp. 15–18. Claims 6, 11, 12, and 15–18, however, which refer to at least one of the original lettered steps "a)" through "d)," were not updated to reflect the resulting shift in step lettering. Patent Owner contends that the "mistake" is clear, and the claims should be regarded with the "reasonable correction" of simply regarding the steps referenced in claims 6, 11, 12, and 15–18 as having been "shifted forward by one letter." Prelim. Resp. 15. For its part, Petitioner acknowledges that those claims "were never updated," but expresses that we need not "decide between the possible interpretations" as the "Petition's grounds meet the claims under both interpretations." Pet. 5.

We discern that there is ostensible agreement between the parties that a readily identifiable mistake occurred during prosecution, and that perceiving claims 6, 11, 12, and 15–18 as having been appropriately "updated" would seemingly, on its face, account for the mistake. Accordingly, we take the approach that is pragmatic, for the purpose of instituting this *inter partes* review and conducting the resulting trial, and we regard the referenced steps in dependent claims 6, 11, 12, and 15–18 as having been "updated" or corrected in the manner made explicit by Patent Owner and implicitly acknowledged by Petitioner in this proceeding.[6]

[6] In that regard, we agree with Patent Owner that were we to not take such an approach, the meanings of the relevant clauses for the pertinent dependent claims are seemingly nonsensical or "illogical." *See* Prelim. Resp. 16–17.

2. Claim Terms

Petitioner contends that all claim terms should be given their "ordinary and customary meaning as understood by a [person of ordinary skill in the art] and the patent's prosecution history." Pet. 5. Petitioner further contends that such meaning is made explicit in the '008 patent for the following terms: "model data," "available data," "issued data," "monitored data," and "interest data." *Id.* (citing Ex. 1001, 2:54–3:46). Additionally, Petitioner expresses that, although the specification of the '008 patent does not mention the term "a single user instance," "a [person of ordinary skill in the art] would have understood the phrase to include at least a session in which the client navigates among a website's webpages." Pet. 24 (citing Ex. 1003 ¶ 108).

Patent Owner agrees that all claims terms have "their ordinary and customary meanings as understood by a [person of ordinary skill in the art] and the patent prosecution history." Prelim. Resp. 13. Patent Owner proceeds to address that meaning for each of the terms: "the issued data" (claim 1); "single user instance" (claims 16 and 17); and "acquiring interest data" (claim 19). *Id.* at 13–15, 18–24.

For purposes of this Decision, we regard all terms as having their ordinary and customary meaning as would be understood by an ordinarily skilled artisan. We agree with Petitioner that the '008 patent sets forth the ordinary and customary meaning of the terms "model data," "available data," "issued data," "monitored data, and "interest data." We further address below the meaning of "issued data," and also address the meaning of "single user instance."

a) "issued data"

Step 1d) of claim 1 recites a certain comparing step of "monitored data" with "model data" relating to human interactions with or in response to "the issued data." Ex. 1001, 5:46–48. Patent Owner contends that, in the context of step 1d), "the issued data" is the same "data issued by the server to the client computing device" that was introduced in step 1b) of the claim. Prelim. Resp. 13–14. We agree with that contention, and it is not apparent that Petitioner expresses disagreement on that particular point. Patent Owner goes on to assert that "assuming the issued data is a 'downloaded webpage' as alleged by [Petitioner] (Petition, 11), then the model data must be based (at least partially) on human interactions with or in response to that *same* webpage." *Id.* at 14. It is with that assertion that disagreement seems to emerge.

The '008 patent defines "issued data" as "data generated by a server or other computing device that is not the same as the computing device for which the assessment as to user status is being performed." Ex. 1001, 3:33–37. In the Petition, Petitioner has identified, at least in part, the data generated by a server associated with a website as constituting data issued by the server, that is "the issued data" referenced in claim 1. *See, e.g.*, Pet. 11. It is apparent from the Petition, as also explained in Petitioner's subsequent briefing, that Petitioner's position is that data collected from one or more "webpages" of a website that is issued from a server associated with that website may constitute the "issued data" encompassed by the claim. *See, e.g.*, Pet. Prelim. Reply 3. On this record, we agree with that position. In particular, it follows readily that such data, even if collected from more than one webpage of a website, is regarded reasonably as constituting "data generated by a server or other computing device that is not the same as the

computing device for which the assessment as to user status is being performed." Ex. 1001, 3:33–37.

Accordingly, at this time, we determine that the reference to "the issued data" as a part of the claims of the '008 patent is not somehow restricted to data generated by a server that emerges from only a single source, such as a single webpage of a website, as opposed to multiple data sources associated with the server of a website, e.g., multiple webpages.

b) "single user instance"

Patent Owner disputes Petitioner's view that for "single user instance" a person of ordinary skill in the art would have understood the phrase to "include at least a session in which the client navigates among a website's webpages." Prelim. Resp. 19 (emphasis omitted). In that respect, similar to the discussion of "the issued data" above, Patent Owner appears to take issue with the premise that the phrase "single user instance" encompasses navigation of multiple webpages of a website. Instead, Patent Owner contends that the phrase "refers to a discrete attempt by a user to gain access to a single resource 'protected from bots,' such as a webpage." Prelim. Resp. 19 (citing the declaration of Samuel Russ, Ph.D. (Ex. 2001) ¶¶ 76–77; Ex. 1001, 4:54–58)). Part and parcel with that contention is that "a single resource" must be only a "single webpage," and, thus, "single user instance" does not encompass navigation of multiple webpages. *Id.* at 20–21.

As noted by Petitioner, the term "single user instance" does not appear in the specification of the '008 patent. The portion of the '008 patent cited by Patent Owner (i.e., Ex. 1001, 4:54–58) describes simply an embodiment in which "a first layer of testing" includes assessment of mouse movements or key strokes for a user that is "attempting to access a server resource."

Patent Owner does not meaningfully explain why that description provides illumination as to the meaning of "single user instance." To that end, although the description refers to "a server resource," left wanting is explanation why "a single resource" means only a single webpage to the exclusion, for instance, of a source that is a website and includes multiple webpages. Patent Owner also does not adequately articulate why a reference to "a first layer of testing" in connection with mouse movements and key strokes excludes such testing as a part of more than a single webpage. Dr. Russ's cited testimony also echoes Patent Owner's arguments, but provides little persuasive insight establishing a dichotomy between a website having multiple webpages and any of "a server resource," "a first layer of testing," and more importantly, a "single user instance."

c) remaining claim terms

We determine that for the purposes of this Decision, it is unnecessary to expressly construe any other claim term. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (Only terms in controversy must be construed and only to the extent necessary to resolve the controversy); *see also Nidec*, 868 F.3d at 1017 (citing *Vivid Techs* in the context of an *inter partes* review).

D. Ground Based on Willner Alone

Petitioner contends that claims 1–3 and 6–18 are either anticipated or rendered obvious based on Willner. Pet. 6–27. Throughout its Preliminary Response, Patent Owner disputes Petitioner's contentions.

1. Summary of Willner

Willner is titled "Cursor Path Vector Analysis for Detecting Click Fraud." Ex. 1005, code (54). Willner's Abstract is reproduced below:

> A system and method for detecting click fraud where data is received corresponding to a tracking movement of a cursor on a web page. The movement of the cursor is associated with at least one vector. The at least one vector represents at least a portion of the cursor movement. A confidence level useable in the determination of click fraud is determined. The confidence level is responsive to analysis of the at least one vector representing at least a portion of the cursor movement.

Id. at code (57).

Willner's Figures 2 and 3 are reproduced below:

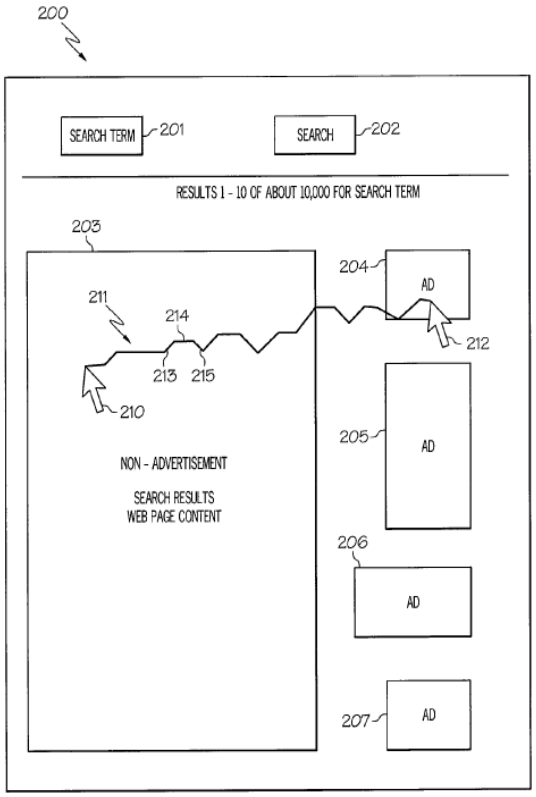

FIG. 2

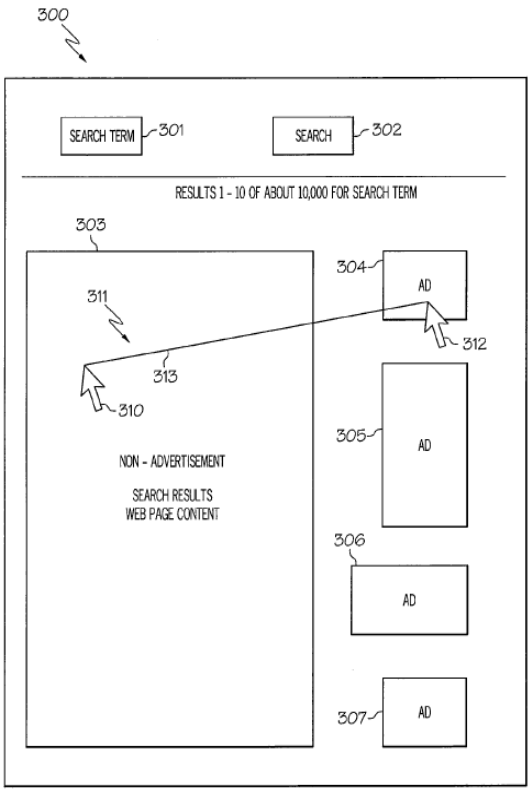

FIG. 3

Figure 2 above shows a diagram of a web page illustrating a human-like cursor movement according to an embodiment. *Id.* ¶ 17. Figure 3 above is a diagram of a web page showing cursor movement resembling click fraud,

i.e., movement by a bot, according to an embodiment. *Id.* ¶ 18. The path traveled by a cursor (211 in Figure 2, 311 in Figure 3) may be mapped into vectors and analyzed to assess whether the cursor movement has been provided by a human operator or a bot. *Id.* ¶¶ 46–48. Willner explains the following:

> [I]n embodiments according to the present invention, the vectors associated with a journey to initiate a click may be stored as a linked list of vectors on a server hosting the web page associated with the click action. These vectors may each be associated with a storage or hash code, where the hash can be decoded to provide at least some identifying information about the vector. The journey to initiate a click can be decoded to provide at least some identifying information about the vector. The journey to initiate a click can then be represented as a sequence of hash codes. Subsequent clicks that implement analogous hash sequence patterns can then be dismissed as an automation tool attempting to simulate the actions of a user, as it would be extraordinarily difficult for an automation tool to implement code to derive unique and discernible user patterns that would map to an individualistic set of vectors.

Ex. 1005 ¶ 38.

2. Independent Claim 1

Petitioner lays out in detail where it believes all the features of claim 1 are found in Willner. Pet. 9–15. Patent Owner disagrees. Patent Owner first focuses its disagreement on step 1d) in claim 1. Prelim. Resp. 26–32. We also focus on that feature.

a) Step 1d)

Step 1d) reads "comparing the monitored data to model data relating to human interaction with or in response to the issued data." Ex. 1001, 5:46–48. As discussed above, "the issued data" is the data issued by the server to the client computing device. *See* § II.C.2.a. Petitioner points to

Willner's disclosure of using stored vector data patterns as to cursor movement on a webpage. Pet. 11–12. In particular, Petitioner contends the following:

> Willner's previously-stored vector data meet the claimed "model data relating to human interaction with or in response to the issued data." The vector data were stored when previous uses (some of which may be human, e.g., "User A") interacted with or in response to the webpage and monitoring markup/code (the claimed "issued data") by clicking on advertisements."

Id. at 12 (citing Ex. 1005 ¶¶ 37–38; Ex. 1003 ¶ 80).

Petitioner also contends the following:

> A [person of ordinary skill in the art] would have understood Willner ([0037]-[0038]) to describe that the previously stored vector data can be received by the website server which is physically remote from the users' sample computing environments (e.g., workstations 101, 103) that access server 102 via the Internet, or alternatively that this would have been the obvious way to implement what Willner describes.

Id. (citing Ex. 1005, Fig. 1; Ex. 1003 ¶ 81).

Patent Owner is of the view that "to demonstrate unpatentability of [step 1d)] [Petitioner] must demonstrate that Willner teaches comparing the mouse movement data to model data relating to human interactions with or in response to *the same* downloaded webpage ("the" alleged "issued data")." Prelim. Resp. 27. Here and elsewhere in its Preliminary Response and PO Preliminary Sur-reply, Patent Owner places emphasis on its argument that the model data relating to human interaction with or in response to the issued data requires that the model data be generated from the singular "same" webpage on which the user interacts (e.g., "clicks") to the apparent exclusion of data that may have been generated from some other webpage. *See, e.g.*, Prelim. Resp. 29 (citing Ex. 2001 ¶¶ 93–99; PO Prelim. Sur-reply

3. On this record, Patent Owner does not adequately connect its arguments to the plain language of claim 1 or suitably account for Willner's disclosure.

In particular, we note that claim 1 simply requires that a server issue data to a client computing device and that model data either relate to or be in response to that data that the server issued (i.e., "the issued data"). The '008 patent also explains that the issued data is data provided from a server to a different computing device for which the user status assessment is performed. *See* Ex. 1001, 3:33–37. Willner clearly discloses that a given website encompassing a server includes stored data indicative of vector patterns that are related to, or in response to, human interaction, and that such data is issued or provided to a different computing device where it is used as an assessment as to the presence of a human operator or bot. *See, e.g.*, Ex. 1005 ¶¶ 37–38. At this time, we cannot discern why Willner's disclosure in that respect does not account adequately for the pertinent requirements of claim 1, even if some of the involved model data may come from more than a single webpage. On this record, we conclude Petitioner's contentions as to Willner's disclosure in connection with step 1d) are persuasive. Further, at this time, we credit the testimony of Petitioner's declarant, Dr. Lopresti (*see, e.g.*, Ex. 1003 ¶¶ 78–83), over that of Patent Owner's declarant, Dr. Russ (*see, e.g.*, Ex. 2001 ¶¶ 93–99), as we conclude that Dr. Lopresti's testimony is predicated on a better assessment of what claim 1 requires and of what Willner discloses.

Moreover, we also take note of Petitioner's position set forth in its Preliminary Reply Brief. In particular, even assuming that Patent Owner's arguments surrounding a "same webpage" requirement are correct, we find Petitioner's position on the matter set forth in its Preliminary Reply Brief to be persuasive. As Petitioner explains, even if, as Patent Owner asserts,

claim 1 is viewed as requiring model data that is "at least partially" based on "the same webpage" that is being monitored, we agree with Petitioner that there is no requirement that the model data "must be based ***only*** on that one webpage." Pet. Prelim. Reply Br. 3; Prelim. Resp. 14. Petitioner cogently explains that Willner "teach[es] that the publisher's server stores vector data collected from user interactions with the webpages of the website that the server hosts, for subsequent comparison by that server in assessing interactions with any one of those monitored webpages of that same hosted website." Pet. Reply Br. 3.

Accordingly, we are persuaded by Petitioner on this record that Willner accounts adequately for step 1d).

b) Remaining steps of claim 1

We have considered the Petition's proposed grounds based on Willner, and its supporting evidence, with respect to the remaining features of claim 1. *See, e.g.*, Pet. 9–11, 14–15. Patent Owner does not present any separate arguments as to those remaining features. We conclude that, for purposes of instituting an *inter partes* review, Petitioner has accounted adequately for those remaining features.

c) Conclusion—Claim 1

We conclude that Petitioner has shown a reasonable likelihood of success in showing that claim 1 is unpatentable under § 102 and § 103 based on Willner.

3. Claims 16 and 17

Claims 16 and 17 are reproduced below:

> 16. The method of claim 1 further comprising repeating a)-d) for a single user instance.
>
> 17. The method of claim 1 further comprising repeating a)-d) for a single user instance until a predetermined value for d) is reached.

Ex. 1001, 6:35–40.[7]

Petitioner lays out in detail how it views claims 16 and 17 as accounted for by Willner's disclosure. Pet. 24–26. With respect to the term "single user instance" Petitioner expresses that it includes "at least a session in which the client navigates among a website's webpages," and contends that a skilled artisan would have understood Willner's disclosure as accounting for such a "single user instance." Pet. 24–26 (citing Ex. 1003 ¶¶ 107–112). Patent Owner challenges Petitioner's view on the theory that "a [person of ordinary skill in the art] would understand that 'single user instance' refers to a discrete attempt by a user to access a single protected resource (e.g., a webpage)." Prelim. Resp. 36 (citing Ex. 2001 ¶¶ 110–111). Patent Owner thus disputes that Willner satisfies a "single user instance" based on that proposed meaning.

As discussed above, on this record, we are not satisfied that Patent Owner's view on the meaning of "single user instance" is correct. *See* § II.C.2.b. We conclude that Petitioner accounts

[7] As discussed above, for purposes of this Decision, we regard the step lettering in claims 16 and 17 as having been shifted forward (e.g., steps a)–d) are understood to refer to steps b)–e) of claim 1). *See* § II.C.1.

adequately for claims 16 and 17 and the recited "single user instance." *See* Pet. 24–26.

4. Claim 18

Claim 18 recites "[t]he method of claim 1 further comprising repeating a)-c) and comparing the first instance of the value of d) to the second instance of the value of d)." Ex. 1001, 6:41–43.[8]

With respect to claim 18, Petitioner contends the following

> Willner discloses or renders obvious repeating [1A]-[1E]. In doing so, Willner compares hash values of first and second click movements, which are generated in the comparison of [1D]. A [person of ordinary skill in the art] would further have been motivated to compare confidence values generated in [1D]-[1E] for first and second clicks to identify scenarios where a first click is too close to call but a subsequent click lowers the confidence such that click fraud is indicated.

Pet. 26–27 (citing Ex. 1005 ¶¶ 38–39; Ex. 1003 ¶¶ 115–116).

Patent Owner contends that when the steps of claim 18 are shifted forward the claim is understood to require comparing the first instance of the value of e) (i.e., not d)), such that the claim requires comparison of "values that represents a confidence level." Prelim. Resp. 39 Patent Owner contends that "Willner's hash values do not 'represent a confidence level,' but instead simply represent mouse vectors." *Id.*

On this record, we see merit in Patent Owner's argument. Although Willner separately discusses assessment of a confidence level (*see, e.g.*, Ex. 1005, code (57)), we do not discern, at this time, that either Petitioner or

[8] As discussed above, for purposes of this Decision, we regard the step lettering in claim 18 as having been shifted forward (e.g., each of steps a)–d) are understood to refer to each of steps b)–e) of claim 1). *See* § II.C.1.

Dr. Lopresti provides adequate explanation as to why Willner's "hash values" are understood to be representative of that confidence level. Patent Owner's potentially meritorious argument warrants further consideration during trial.

5. Claims 2, 3, and 6–15

We have considered the Petition's proposed grounds based on Willner, and its supporting evidence, with respect to claims 2, 3, and 6–15. *See, e.g.*, Pet. 16–24. Patent Owner does not present any separate arguments as to those claims. We conclude that, for purposes of instituting an *inter partes* review, Petitioner has accounted adequately for claims 2, 3, and 6–15.

E. Ground Based on Willner and Kitts

1. Summary of Kitts

Kitts is titled "Click-Fraud Protector." Ex. 1009, code (54). Kitts summarizes its disclosure below:

> Determining the probability that a user or program fraudulently initiated a web-page request is described herein. A web service executing on a server includes a data-mining component, computation component, and auction component. The data-mining component is configured to determine attributes associated with the web-page request. The computation component is configured to calculate a probability that the web-page request was fraudulently initiated. To calculate this probability, the attributes and other parameters are fed into a statistical model. The auction component is configured to locate one or more advertisements to display on the web page based on the probability. The auction component is also configured to restrict the advertisements for display based on advertiser-

> specified target criteria. Once an advertisement is located, the advertisement is rendered along with the web page.

Ex. 1009 ¶ 9.

Kitts further describes that the types of attributes that can be analyzed "include, without limitation, an internet protocol (IP) address of the client-computing device, . . . date, time, geographic location, metadata, key words, HTML tabs, or other characteristics associated with the page request." *Id.* ¶ 46.

2. Discussion of Willner and Kitts

Petitioner contends that claims 1–18 and 20 would have been unpatentable based on Willner and Kitts. Pet. 27–33. In connection with claims 1–3 and 6–18, Petitioner contends that "[t]he Willner-Kitts combination meets claims 1-3, 6-18 for the same reasons as Willner alone discussed *supra* [in the Petition], which are unchanged in the combination." *Id.* at 29 (citing Ex. 1003 ¶ 119).

Petitioner did not challenge claims 4, 5, and 20 based on Willner alone. Those claims are reproduced below:

> 4. The method of claim 1 wherein the model data comprises passive model data.
>
> 5. The method of claim 4 wherein the passive model data comprises browser cookies; destination IP histories; originating IP address; originating IP address traffic data; originating IP address physical location; and/or third party data regarding abusers comprising originating IP address and physical locations.
>
> ***
>
> 20. The method of claim 1 wherein the interest data consists of available data.

Ex. 1001, 5:59–6:6; 6:58–59.

Claims 4 and 5 specify the type of model data referenced in claim 1 as certain types of "passive model data." Claim 20 refers to "interest data," as being "available data."[9] It is clear from the specification of the '008 patent that "available data" is understood to be a type of "passive data." Ex. 1001, 3:18–24.

Petitioner primarily applies Kitts's teachings in combination with Willner to account for the "passive" data aspects of claims 4, 5, and 20. Pet. 30–33. Petitioner contends that the type of passive data disclosed by Kitts is the same type of data set forth in claims 4, 5, and 20. Petitioner also contends the following:

> Willner and Kitts address the same problem of preventing automated click fraud on webpage advertisements . . . , and both analyze data regarding the client device's interaction with the webpage to determine a value (Willner's "confidence level" or Kitts's "quality score") indicating whether the user is likely a human or bot.

Pet. 28.

Petitioner further contends the following:

> [A person of ordinary skill in the art] would have been motivated to improve Willner's performance in detecting automated click fraud by analyzing passive data as Kitts teaches, in addition to active data as Willner teaches. Lopresti-Declaration, [0118] Kitts ([0047]) teaches that "[s]uch information can be an important tool in determining whether the user requesting the web page has a propensity for click fraud," and it was well known to [a person of ordinary skill in the art] that analyzing passive data could help differentiate humans from bots."

Pet. 28–29 (citing Ex. 1009 ¶¶ 31–32, 47 49, 67–68; Ex. 1003 ¶ 118).

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[9] We note that claim 1 does not recite "interest data." Patent Owner contends that the reference to "interest data" should instead be to "model data." Prelim. Resp. 26. We determine it is unnecessary to resolve this ambiguity as a part of this Decision.

We find persuasive, on this record, Petitioner's contentions and Dr. Lopresti's testimony that a skilled artisan would have recognized reasonably that types of data understood as "passive" (e.g., browser cookies, IP addresses, IP histories, geographic location, etc.) are known in the art as data used in the pursuit of click fraud detection.

Throughout its briefing, Patent Owner discusses theories challenging the propriety of combining Willner with any of Kitts's teachings. For instance, Patent Owner notes that Willner characterizes its system as "'actually impossible' for bots to perpetuate click fraud on" and extrapolates from that description that a person of ordinary skill in the art would have "no apparent reason" to attempt to further improve Willner's system "by adding Kitts' statistical model analysis and use of passive data." *See, e.g.*, Prelim. Resp. 45–46.

Patent Owner also criticizes Petitioner for not having explained how the "benefits" attributed to adding Kitts's passive data statistical model would outweigh any "drawbacks." *Id.* at 48. To that end, Patent Owner also discounts that a skilled artisan would have recognized that any benefits would accrue to Willner's system because it already is a "highly effective bot detection mechanism[]." *Id.* at 48–49 (emphasis omitted).

Patent Owner further characterizes Willner as "teach[ing] away" from combination with Kitts and attempts to discount the combination of Willner and Kitts in generally arguing that Kitts' teachings add "unnecessary complexity." *See, e.g.*, *id.* at 49–52. Patent Owner describes that alleged complexity, when taken along with description in Willner that its bot detection is already effective, as "teach[ing] away" from a combination of Willner with Kitts. *Id.* at 49.

We have considered all of Patent Owner's arguments challenging the viability of combining Willner's teachings with those of Kitts, but do not find that any of them warrant denial of institution of trial. The parties agree that a person of ordinary skill in the art has considerable education and experience in the areas of computer science and computer security. *See* Pet. 4; Prelim. Resp. 12. The record reflects that Kitts's express teachings would have conveyed to a person of ordinary skill in the art involved in computer science and security that "passive data" can be useful as an "important tool" in the realm of evaluating the possibility that click fraud is occurring. *See, e.g.*, Ex. 1009 ¶ 47; *see also* Ex. 1003 ¶ 118.

Furthermore, a person of ordinary skill in the art is also a person of ordinary creativity. *KSR,* 550 U.S. at 421. It follows reasonably from Kitts's teachings that one of ordinary skill and creativity would have appreciated that passive data would have had recognized benefits in detecting click fraud in the type of system conveyed in Willner (*see* Ex. 1009 ¶ 47; *see also* Ex. 1003 ¶ 118), even if harnessing those benefits in such a system would require addressing issues of "complexity" as urged by Patent Owner. *See, e.g.*, Prelim. Resp. 49. That is reasonably so even if Willner expresses praise for its own system's effectiveness in detecting bots engaging in click fraud. There is no plausible indication on the record at hand that employing a particular type of data, i.e., passive data, in a click fraud detection system would have been beyond the skill of a skilled artisan so as to suggest non-obviousness. *See KSR*, 550 U.S. at 417 ("if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill."). On this record, we find credible, and adequately supported by

record evidence, Dr. Lopresti's testimony that use of passive data was well known "to help differentiate humans from bots." *See, e.g.*, Ex. 1003 ¶ 118. We further credit Dr. Lopresti's testimony that a person of ordinary skill in the art would have had adequate motivation to combine Willner's and Kitts teachings (*see, e.g.*, *id.*), and also conclude, at this time, that that the record reasonably conveys that there would have been a reasonable expectation of success in doing so.

Accordingly, we conclude that institution of an *inter partes* review based on the ground involving the combined teachings of Willner and Kitts is warranted.

F. Grounds Based on O'Connell

1. Summary of O'Connell

O'Connell is titled "User-Browser Interaction-Based Fraud Detection System." Ex. 1007, code (54). O'Connell's Abstract is reproduced below:

> Systems, methods and media for detecting fraudulent behavior during an Internet commerce session are disclosed. Embodiments of a method may include establishing an e-commerce session with a user and requesting fraud detection analysis of user-browser interaction during the e-commerce session. Embodiments may also include receiving fraud detection results for the e-commerce session, where the fraud detection results may provide an indication of a comparison between the user's interaction with a browser during the e-commerce session and known fraudulent behavior. Embodiments may also include performing an action based on the fraud detection results. Determining the fraud detection results may include determining user-browser interaction data associated with the session and comparing the user-browser interaction data to known fraudulent human or automated program behavior. Performing the action based on fraud detection results may include one or more of completing an e-

> commerce transaction, requesting additional authentication, denying the requested action, etc.

Id. at code (57).

O'Connell further describes that

> [f]actors that may represent potential fraudulent behavior by an automated program and thus raise potential security issues may include data that is entered too rapidly, a mouse pointer tha[t] never moves, a large form that is filled out without the browser window scrolling, data transmitted in a form without keystrokes being recorded, or other factors.

Id. ¶ 48.

2. Discussion of O'Connell Based Grounds

Petitioner contends that claims 1–18 and 20 are unpatentable under either § 102 or § 103 based on O'Connell alone, or under § 103 based on O'Connell and Kitts. It is apparent from the Petition that Petitioner regards O'Connell's teachings as analogous to, and alternative with, the teachings of Willner. *See, e.g.*, Pet. 33–52.

Patent Owner challenges the grounds based on O'Connell for many similar reasons that underscored its challenges to the grounds based on Willner. For instance, Patent Owner also provides some similar arguments that Petitioner has not established suitable reasoning for combining the teachings of O'Connell with those of Kitts. Those particular arguments largely reflect a purported dichotomy between fraud detection systems that primarily use "active data," as in O'Connell, with systems that primarily employ "passive data," as in Kitts. *See, e.g.*, Prelim. Resp. 43–52. As discussed above in connection with the grounds based on Willner, we find questionable the view that a skilled artisan in the relevant art would have been discouraged from, or been incapable of, addressing the considerations

or "complexit[ies]" (*see, e.g.*, *id.* at 50–51) that arise from using both active data and passive data as a part of a fraud detection system.

Patent Owner also contends that O'Connell does not disclose step 1d) of claim 1. Similar to the ground based on Willner, Petitioner contends that O'Connell includes a "server 106" that sends information, such as webpage content, to a client computer system 102. Pet. 35 (citing Ex. 1007 ¶¶ 32, 50; Ex. 1003 ¶ 132). Quoting O'Connell's disclosure, Petitioner also contends that "'[E]very page sent by…server 106' may include 'JavaScript™ code [that] track[s] details of the user's interaction with the browser 112 and transmit[s] an indication of such interaction…to a specified server." *Id.* (quoting Ex. 1007 ¶ 26). Stating that "O'Connell detects fraud by 'comparing' the monitored 'user-browser interaction data to known fraudulent human or automated program behavior," Petitioner goes on to conclude that O'Connell accounts for all that step 1d) requires. *See* Pet. 36–38 (emphasis omitted).

We discern that Patent Owner's arguments when it comes to the absence of step 1d) in O'Connell appear more pointed or robust than those that were offered with respect to the Willner grounds. In that regard, Patent Owner contends that O'Connell employs only "simple rules-based criteria" in assessing apparent behavior of a bot rather than employing "user interaction data from a sample computing environment," e.g., a website, as is said to be required by the claims. Prelim. Resp. 34. Although, as with the Willner grounds, Patent Owner contends that there is a "same webpage" requirement implicit to claim 1, we understand Patent Owner here to further assert that O'Connell potentially lacks disclosure reflecting user interaction with any sample computing environment and thus O'Connell does not

disclose the "model data" required by step 1d). *See* Prelim. Resp. 33–34, 52–57.

Patent Owner also contends that Petitioner has resorted to an unspecified assertion of "general knowledge" to account for the model data that arises "from user-interactions with a sample computing environment," and that Petitioner has not adequately supported its reliance on such "general knowledge." *Id.* at 52–57. We do note that, on this point, Petitioner suggests that "[t]o the extent O'Connell does not explicitly discuss a sample computing environment, that would have been an obvious way to collect data representative of human interaction." Pet. 38. But, that position appears somewhat general and is not thoroughly explained.

In our view, Patent Owner has identified potential weaknesses in the grounds based on O'Connell that may warrant additional consideration during a trial.

G. Ground Based on Kitts alone

Petitioner contends that independent claim 19 and dependent claim 20 are unpatentable based on Kitts under either § 102 or § 103.[10] Pet. 52–61. Patent Owner disagrees. Prelim. Resp. 60. Claim 19 is independent and reproduced below:

> 19. A method for assessing a confidence level that an operator of a client computing device interacting with a server is

[10] Claim 20 appears in the '008 patent as depending from claim 1 and not claim 19. Petitioner contends its grounds based on Kitts apply to claim 20 if it is "interpreted to depend from claim 19." Pet. 60. Patent Owner contends that claim 20 was "expressly" written to depend from claim 1. Prelim. Resp. 25–26. At this time, we regard claim 20 as dependent on claim 1, as written, and conclude that Petitioner's proposed ground to claim 20 based on Kitts is not germane.

> a human being rather than an autonomic computer application, the method comprising:
>
> a) acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device;
>
> b) comparing the interest data to model data relating to human interaction with a computing device prior to the time in which the interest data is acquired; and
>
> c) generating a value that represents a confidence level that a human user rather than an autonomic user operated the client computing device prior to the time in which the interest data is acquired.

Ex. 1001, 6:44–56.

The parties focus their dispute when its comes to claim 19 on the recitation in step a) of "acquiring interest data." According to Patent Owner "'acquiring' interest data necessarily requires retrieving interest data containing **at least some active data**," and "Kitts only discloses passive data." Prelim. Resp. 60 (referencing Patent Owner's claim construction of "acquiring interest data" at section "IV.D."); *see* PO Prelim. Sur-reply 3–4.

Petitioner contends that the '008 specification supports a determination that "acquiring interest data" can include only passive data. Pet. 55–57 (referencing Petitioner's application of Kitts's teachings for prior proposed grounds); Pet. Prelim. Reply 3–4.

We discern that there is considerable ambiguity on the present record as to the meaning of "acquiring interest data," and, in particular, whether the pertinent step is accounted for in Kitts based only on passive data. For instance, although, as Petitioner notes, the '008 patent defines "interest data" as "active ***or passive*** data" (Pet. Prelim. Reply 3 (quoting Ex. 1001, 3:41–42)), the patent also seems to define "acquired data" and "its equivalents and verb forms" as constituting "a type of active data" (Ex. 1001 3:25–32). On

this record, there is uncertainty as to why the recitation in claim 19 of "acquiring" a type of data, i.e., interest data, should take on a general meaning that is divorced from the particular definition of "acquired data" and its "verb forms" provided in the '008 patent. *See* Pet. Prelim. Reply 3–4; Ex. 1001, 3:25.

Patent Owner's view that "acquiring interest data" constitutes a "verb" form of "acquired data" where the particular type of data involved is "interest" data seemingly has merit. Pet. Prelim. Reply 3–4. Yet, left wanting from Patent Owner's position is how the confusion that then arises from statements in the specification as to "interest data" can be so readily dismissed. In particular, consider the following statement in the specification of the '008 patent: "'*interest data' . . comprises* active or *passive data*, whether available or *acquired*, that correlates to any data within model data." Ex. 1001, 3:41–43 (emphasis added); *see* PO Prelim. Sur-reply 4. A plausible reading of that statement conveys that the '008 patent specifically contemplates that interest data may be passive data even if it is acquired.

For purposes of this Decision, and despite the subsequent briefing from the parties that was authorized, we conclude that ambiguity remains with respect to the meaning of "acquiring interest data" that the parties may address further during trial.

H. Patent Owner's Request for Discretionary Denial

Patent Owner contends that discretionary denial is "warranted for at least two reasons." Prelim. Resp. 61. First, Patent Owner contends that it is an inefficient use of Board resources to institute because Petitioner offers "redundant" grounds, and does not "explain why so many redundant

grounds" are necessary. *Id.* Although there is some overlap among the five numbered grounds in the Petition, such overlap is, in our view, neither excessive nor unexplained and does not rise to the level for which discretionary denial might be warranted. In that respect, Petitioner adequately explains what references it is relying for each claim limitation as a part of the various grounds.

As a part of its first proposed reason for discretionary denial, Patent Owner also contends that all of the proposed grounds are deficient. *Id.* at 61–62. As discussed above, we do not agree and conclude that at least the grounds based on Willner demonstrate that Petitioner has shown a reasonable likelihood of prevailing in showing at least one claim of the '008 patent to be unpatentable.

Second, Patent Owner contends that all of Petitioner's proposed grounds lack the necessary "particularity" that is required by 35 U.S.C. § 312(a)(3). *Id.* at 62–64. We do not agree, as we conclude, for the reasons discussed above, that Petitioner has shown adequately, at least for those grounds based on Willner, where all features of the claims are found in the prior art. We also conclude that, for the reasons discussed above, on this record, Petitioner has provided adequate reasons that a person of ordinary skill in the art would have combined the teachings of at least Willner and Kitts, and that a skilled artisan would have had a reasonable expectation of success in doing so.

Lastly, we are mindful of Petitioner's assessment of the factors laid out in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential) ("*Fintiv*"), and Petitioner's view that none of those factors weighs in favor of our exercising discretion to deny institution under 35 U.S.C. § 314(a). *See* Pet. 61–65. We also are cognizant of Petitioner's

analysis and assessment that the first prong of the test in *Advanced Bionics, LLC v. MED-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8–9 (Feb. 13, 2020) (precedential) has not been met, such that exercise of discretion to deny institution pursuant to 35 U.S.C. § 325(d) also is not warranted. Pet. 66–67. Patent Owner does not meaningfully address discretionary denial under *Fintiv* or *Advanced Bionics*.

On the record before us, we decline to exercise our discretion to deny institution of an *inter partes* review.

III. CONCLUSION

Petitioner has shown a reasonable likelihood that it would prevail with respect to at least one of the challenged claims.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–20 of the ’008 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the ’008 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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