

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HOME DEPOT U.S.A., INC.,
Petitioner,

v.

SECURITY TECHNOLOGY, LLC,
Patent Owner.

IPR2024-01420
Patent 11,562,402 B2

Before ST. JOHN COURTENAY III, MICHAEL R. ZECHER, and
FRANCES L. IPPOLITO, *Administrative Patent Judges*.

IPPOLITO, *Administrative Patent Judge*.

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

I. INTRODUCTION

Home Depot U.S.A., Inc. (“Petitioner” or “Home Depot”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review (“IPR”) of claims 1–19 of U.S. Patent No. 11,562,402 B2 (Ex. 1001, “the ’402 patent”). Security Technology, LLC (“Patent Owner”) filed a Preliminary Response (Paper 9, “Prelim. Resp.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and any response thereto shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Considering the arguments presented, we conclude that there is a reasonable likelihood that Petitioner would prevail in challenging at least one of claims 1–19 of the ’402 patent as unpatentable under the grounds presented in the Petition. Pursuant to § 314, we hereby institute an *inter partes* review as to these claims of the ’402 patent.

A. *Real Parties in Interest*

Petitioner identifies “Home Depot U.S.A., Inc.” as the real party-in-interest, but also “The Home Depot, Inc. as a potential real party-in-interest solely because it was a named defendant in the EDTX Litigation.” Pet. 71. Patent Owner identifies “RavenWhite Licensing LLC and Security Technology, LLC” as the real party-in-interest, but notes “[t]he owner of U.S. Patent No. 11,562,402 . . . is Security Technology, LLC.” Paper 8 (Patent Owner’s Mandatory Notice), 1.

B. *Related Matters*

The parties indicate that the ’402 patent is asserted in the following district court cases: (1) *RavenWhite Licensing LLC v. The Home Depot, Inc.*,

No. 2:24-cv-00688 (E.D. Tex. filed Aug. 21, 2024) (“EDTX Litigation”); and (2) *RavenWhite Licensing LLC v. Walmart, Inc.*, No. 2:24-cv-00689 (E.D. Tex. filed Aug. 21, 2024). Pet. 71; Paper 8, 1. Petitioner further indicates the ’402 patent was previously asserted and dismissed without prejudice in: (1) *RavenWhite Licensing LLC v. The Home Depot, Inc.*, 2:23-cv-00423 (E.D. Tex. dismissed); and (2) *RavenWhite Licensing LLC v. Walmart, Inc.*, 2:23-cv-00418 (E.D. Tex. dismissed). Pet. 71.

C. *The ’402 patent*

The ’402 patent relates to “[t]iered advertisement bidding.” Ex. 1001, code (57). The ’402 patent discloses “tiered bidding for advertisements” where advertisers may specify how much will be paid for an advertisement to be shown to a user having a particular assessed value (e.g., a quality score of 70 or better). *Id.* at 3:1–14. The ’402 patent explains that “advertisers can particularly bid for traffic of some estimated quality (e.g., by bidding \$0.10 per click for a quality at or above 60% and \$0.01 for a quality below that).” *Id.* at 3:67–4:2. “The quality measure can . . . be used as an advertiser-specified filter that governs what types of traffic the advertiser is interested in bidding on.” *Id.* at 4:5–7. Factors of the quality measure include user account information, user context information, and general context information. *Id.* at 4:23–13. “Examples of user account information include historical/estimated search and click behavior (and rates), historical/estimated conversions, and historical/estimated purchase volume.” *Id.* at 4:32–35. The ’402 patent discloses that “[e]xamples of user context information include recent searches, mouse-over and click behavior, and information of recent pages requested by the user.” *Id.* at 4:38–41. For general context information, the ’402 patent includes the “activities of other

users with whom the user has a connection. . . [and] temporal information[] such as estimates of how likely the desired behavior is at the current time [period].” *Id.* at 4:60–5:4. The ’402 patent adds that “[w]hether the user’s need has been met can be used as another dimension of a quality measure, [e.g.,] relative to a particular product type.” *Id.* at 5:36–39.

In operation, the selection of an advertisement for a given device includes assessing the user’s “general quality” level and/or “specific quality” level(s). *Id.* at 7:63–9:13. The ’402 patent explains that one user may have a “general” quality level of 6 for clicking one advertisement per month but “specific” quality level of 4 for shoes and 3 for gourmet foods. *Id.* at 8:28–34. Another user may have, e.g., a general quality level of 7 for clicking 3 advertisements per day and specific quality levels of 6 and 9 for advertisements respectively not car-related and car-related. *Id.* at 8:36–41. Each advertisement under bid can offer different payment amounts for respective different quality levels, e.g., one for a general quality level, another for a specific quality level of a particular product category, etc. *Id.* at 4:5–8, 8:1–9:2.

The ’402 patent further discloses that the advertising platform may determine when a need is met, e.g., when a user has made a purchase that was the subject of prior search activity. *See id.* at 5:15–40. In one example, the ’402 patent discloses that a user performs searches “buy camera” and “camera review,” but subsequently searches for a lens cap or photo album. *Id.* In this example, the ’402 patent indicates that “[w]hether the user’s need has been met can be used as another dimension of a quality measure, for example relative to a particular product type, or type of recent activity of the

user, or of users associated with the user in question.” *Id.* at 5:36–40. The ’402 patent provides another example:

Suppose a user is observed to be interested in purchasing beginner’s books on painting (e.g., by retailer), and later, the user purchases paint brushes. It is likely that the user is no longer interested obtaining beginner books on painting (because that particular need has been met). However, it is also likely that the user will be interested in purchasing paint. In this example, *one action (e.g., purchase or search) can be indicative of an old need or interest being less likely now, and also of a new interest being likely.*

Id. at 5:41–50 (emphases added).

Further, a “conversion assessment” may be made based on when a user’s need has already been met. With reference to Figure 3, the ’402 patent provides these examples:

[S]uppose a user has spent quite a bit of time researching washers and dryers over the last week (i.e., indicating a need in the category of “Large Appliances”). The user has stopped performing such research and is instead now researching installation companies. . . [then] a determination would be made that a need that was previously associated with the user profile has been met. As another example, where a user previously researched travel to Spain and suddenly switched to researching travel to France, a determination could be made at that a “Travel” or “Vacation” need previously associated with the user’s profile has not yet been met.

Id. at 5:51–67. The ’402 patent discloses that, “[i]n the case of the large appliances, . . . it would be determined by platform that advertisements involving large appliances will likely have a very low conversion rate if presented to the user. Other advertisements (e.g., pertaining to home warranties, fix-it classes, etc.) may be determined to have very high conversion rates.” *Id.* at 6:3–9. The ’402 patent discloses that, “[i]n the case

of the user researching travel, the conversion assessment would likely reveal that advertisements pertaining to travel will have a reasonably high conversion rate, because the user's 'need' in the travel category has not yet been met." *Id.* at 6:12–17.

"Personae Identification" may also be incorporated to distinguish between multiple users of a device (*id.* at 11:23–24) and reduce the presumed user's quality levels per any degree of uncertainty as to correctly identifying the user. *Id.* at 2:33–35. "[P]ersona detection is performed based on user interactions with a device." *Id.* at 12:25–26. The '402 patent explains that a current user of a device "might be one of multiple individuals, . . . [t]he quality measure includes an estimate of the likelihood that the current device user matches a given profile" based on "[c]ontextual factors" (e.g., day of week, time of day, type of activity, search terms) and "recent activity" (e.g., clicks, conversions, and purchases). *Id.* at 12:4–16. The '402 patent provides the example that at 7pm on Sunday night "there is an 80% chance that Bob is using tablet 110[] and a 20% chance that Charlie is doing so" (*id.* at 12:17–29), and "if Bob's general quality score is 5, [then] on Sunday night at 7 pm[Bob's] score might be temporarily set to 4 for the remainder of the evening (as a result of multiplying 5 by 0.8)" (*id.* at 12:36–39).

For these situations, the '402 patent discloses "clustering techniques" to "ascertain how many users a device has and what the users' characteristics

are.” *Id.* at 12:63–65. For example, Figure 6 is reproduced below.

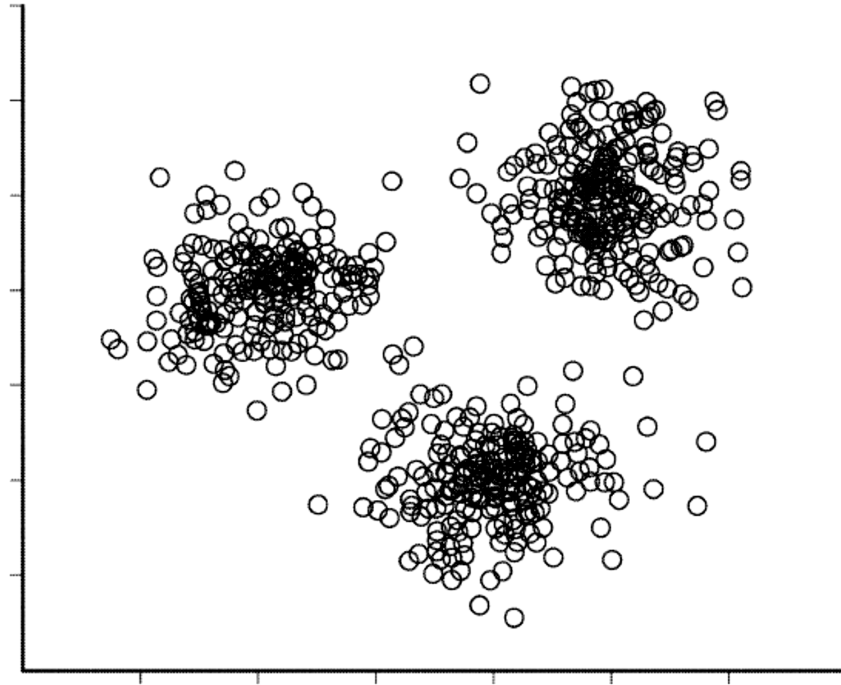


Figure 6 illustrates a collection of measurements along two dimensions. *Id.* at 1:47–48. “[T]he x-axis is a measurement of the distance from the center of a display item that a user clicks [and] the y-axis is a measurement of the mouse-over speed leading up to the click.” *Id.* at 12:47–50. The ’402 patent discloses that “these example clicks correspond to a particular device . . . [and] naturally form three clusters . . . indicat[ing] . . . three distinct users of the device.” *Id.* at 12:50–55. “[T]he data in each of the three clusters is matched against previously stored data (or, if no matching data is found, new records are created).” *Id.* at 12:55–57.

D. Challenged Claims

Petitioner challenges claims 1–19. Pet. 1. Claims 1, 10, and 19 are independent claims. Claim 1 is reproduced below with the Petition’s identifiers (*id.* at “claims” section)¹:

1. [1pre] A method, comprising:

[1a] determining a first quality level associated with a user profile, [1b] wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein the first quality level is determined based at least in part on at least one of: (1) a first search associated with the user profile or (2) a first purchase associated with the user profile, [1c] and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering;

[1d] determining, for a user associated with the user profile, an indication of interest in a first category, wherein the indication of interest in the first category is determined based at least in part on at least one of: (1) a second search associated with the user profile or (2) a second purchase associated with the user profile;

[1e] storing, in a record associated with the user, the indication of interest in the first category;

[1f] subsequent to determining the indication of interest in the first category, determining, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the user profile or (2) a third purchase associated with the user profile;

[1g] based at least in part on the determination that the need relative to the first category has been met, determining an indication of interest in a second category, wherein the indication of interest in the first category and the indication

¹ The Petition’s “claims” section is page-numbered 1 through 4, which results in page-numbering repetition inasmuch the ensuing arguments section restarts page-numbering at 1.

of interest in the second category comprise a sequence of related indications of interest;

[1h] in response to determining that the need relative to the first category has been met, determining a second quality level associated with the user, wherein the second quality level is determined with respect to the first category;

[1i] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior; and

[1j] displaying an advertisement to the user based at least in part on at least one of the first quality level or the second quality level.

Ex. 1001, 17:54–18:29.

II. PRINCIPLES OF LAW

A. *Prior Art and Asserted Grounds*

Petitioner asserts that claims 1–19 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–19	103	Grannan, ² Chung, ³ Yang ⁴
1–19	103	Grannan, Chung, Ramaiyer ⁵

Pet. 1. Petitioner also relies on the Declaration of Robert J. Sherwood, Ph.D. (Ex. 1003).

² U.S. Patent Application Publication No. 2007/0244750 A1 (Ex. 1007).

³ U.S. Patent No. 7,809,740 B2 (Ex. 1005).

⁴ *Segmenting Customer Transactions Using a Pattern-Based Clustering Approach*, Yinghui Yang and Balaji Padmanabhan (Ex. 1006).

⁵ U.S. Patent Application Publication No. 2012/0109956 A1 (Ex. 1009).

B. Obviousness

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the U.S. Court of Appeals for the Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four Graham factors and that an obviousness determination can be made only after consideration of each factor.” *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016).

We note that, with respect to the fourth *Graham* factor, the current record in this proceeding does not include any argument or evidence directed to secondary considerations of nonobviousness. The analysis below addresses the first three *Graham* factors.

C. 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 (“POSITA”) at the time of the invention of the ’402 patent “would have had a bachelor’s degree in computer science, electrical engineering, computer engineering, or the equivalent technical training. Additionally, they would have at least three years of experience in designing or programming internet-related processes, such as user profile management and/or web-based targeted advertising.” Pet. 5 (citing Ex. 1003 ¶¶ 53–55).

For purposes of the Preliminary Response, “Patent Owner applies Petitioner’s definition of a person of ordinary skill in the art (‘POSITA’).” Prelim. Resp. 8.

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).

III. CLAIM CONSTRUCTION

In this *inter partes* review, we apply the same claim construction standard “used in the federal courts, in other words, the claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b),” which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2019)). Under the *Phillips* standard, the “words of a claim are generally given their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention,

i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13.

According to Petitioner: “Because the prior art asserted herein discloses the preferred embodiment within the indisputable scope of the claims, the Board need not construe the outer bounds of the claims as part of these proceedings.” Pet. 9 (citing Ex. 1003, ¶ 57). Patent Owner responds that, at the preliminary stage of this proceeding, “no term needs explicit construction to resolve any controversy between the parties.” Prelim. Resp. 9.

We do not need to construe any terms expressly to reach our decision on institution. *See Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

IV. ANALYSIS

A. Summary of References

1. Grannan (Ex. 1007)

Grannan is a U.S. patent application publication titled “Method And Apparatus For Selecting Advertising.” Ex. 1007, code (54). Grannan is directed generally to “[t]argeted advertisements . . . sent to targeted recipients based on geographic areas . . . [and] selected demographic sectors . . . most likely to be responsive to the[] advertisements.” *Id.* ¶ 5. Figure 2 of Grannan is reproduced below.

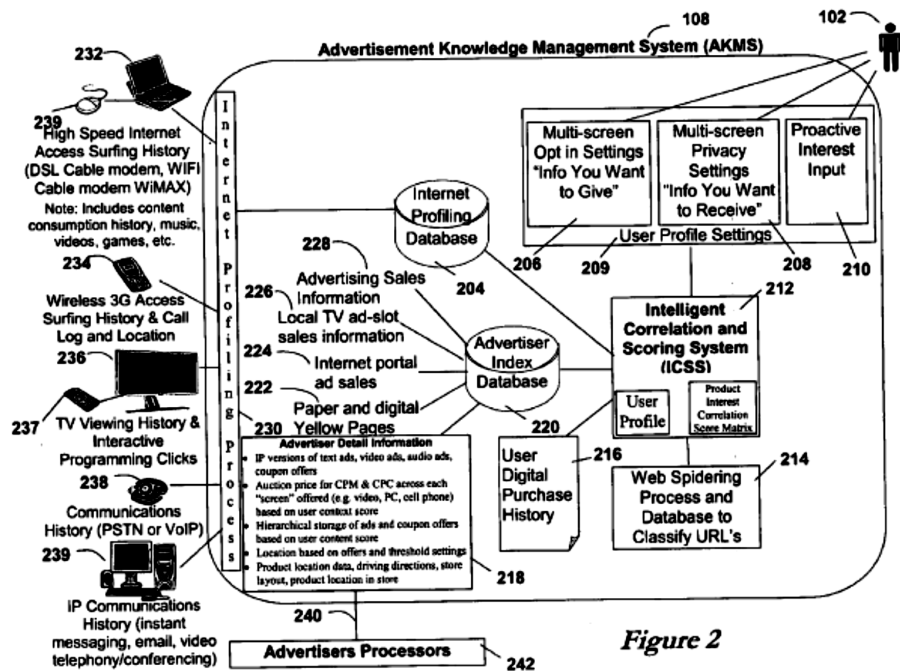


Figure 2

Figure 2 is a block diagram of system components of an Advertisement Knowledge Management System (AKMS) for determining which advertisements should be targeted to a subscriber. *Id.* ¶ 8. Grannan discloses that Internet profiling process 230 monitors subscribers' access devices event data used to access the IP network and stores the access event devices data in an Internet profiling database 204. *Id.* ¶ 65. Grannan further discloses that

Internet profiling process 230 monitors the access devices event data associated for the subscriber's communications including outgoing calls, telephone numbers called, Internet access surfing history, content consumption, music, videos and games, [instant messaging ("IM")], text messaging, chatting, and locations of a subscriber, etc.

Id. ¶ 65. Additionally, Internet profiling process 230 "may monitor digital or analog electronic activity of the subscriber to store in the subscriber profile 209 and calculate a *product interest correlation score* in a product or service category for the subscriber *based on the monitored event data.*" *Id.*

(emphases added). The product interest correlation score may range from 1 to 100. *Id.* ¶ 63. Advertisers may set product interest correlation score thresholds for sending advertisements to subscribers. *Id.*

Grannan further discloses that “[Internet] profiling process 230 usually will be able to identify the subscriber via single sign-on (SSO) credentials, and then maintains a [uniform resource indicator (“URI”)] history log for the identified subscriber.” *Id.* ¶ 86. “Alternatively, unique identifying information obtained from the access device (e.g. cellular phone number, [media access control (“MAC”)] address, product serial number) may be used to infer SSO credentials.” *Id.*

As shown in Figure 2, the AKMS may include advertiser index database 220 that stores data indicating advertising sales information 228 and advertiser detail information 218. *Id.* ¶ 66. Advertising detail information 218 may include “hierarchical storage of advertisements and coupon offers based on subscriber product interest correlation score data and subscriber context score data in a product category.” *Id.* Advertiser index database 220 is in communication with the intelligent correlation and scoring system (ICSS) 212. *Id.* ¶ 70.

ICSS 212 determines appropriate advertisements for subscribers. *Id.* ¶ 80. To do so, ICSS 212 receives inputs from Internet profiling database 204 (which supplies the surfing and content consumption history for the subscriber across multiple access devices); advertiser index database 220; purchase history 216 for the subscriber (which includes purchases made electronically online and brick and mortar retail); subscriber profile settings 209; and web spidering process 212 (which analyzes URI links within web sites). *Id.* ¶ 80.

Through the various components, AKMS 108 provides messaging to ICSS 212 to update a subscriber's product interest correlation scoring matrix in real time. *Id.* ¶ 84. For example, ICSS 212 may perform a database search of the URI or associated event data in the spidering results database 214 and, "if the URI or other event exists in the database, the specific product categories affected by the event are retrieved 506 along with their associated product interest correlation scores and updated in the product interest correlation score matrix for the subscriber." *Id.* ¶ 100.

2. *The Chung (Ex. 1005)*

Chung is a U.S. patent titled "Model For Generating User Profiles In A Behavioral Targeting System." Ex. 1005, code (54). Chung is generally directed toward the "field of behavioral targeting, and more particularly toward an online behavioral targeting system." *Id.* at 1:7–9. Chung describes the invention's background as Internet portals whereby online activity "may be recorded and analyzed to determine behavioral patterns and interests of the user" and then "advertisements[] pertaining to [corresponding] products and services[] may be served to the user." *Id.* at 1:20–29.

Chung further discloses a "behavioral targeting system [that] determines user profiles from online activity . . . [via] weight parameters at least partially defin[ing] a model to generate a user profile score." *Id.* at 1:35–38. The profile scores are generated "by category" and "predict user propensity for subject matter in the category for the target objective." *Id.* at 4:66–5:2. To generate a profile score, the system "receives event information from at least one event . . . [of] on-line activity between the user and [an] entity . . . [and] applies [a] weight parameter to the

user event information.” *Id.* at 1:39–45. “[W]eight parameters are created on a category-by-category basis (i.e., a model for each category)” and “comprise recency, intensity[,], and frequency dimension parameters.” *Id.* at 1:46–50; *see also id.* at 6:2–13 (describing these parameters). “[T]he system classifies [each] event in a category” and “processes one or more events to generate a raw user interest score for a category.” *Id.* at 5:62–66. “Raw scores indicate a relative interest measure of a user in a category for a target objective[, but] . . . do not directly measure the propensity of a user’s action,” and thus they “are converted or mapped to more useful . . . mapped scores . . . that reflect user tendencies.” *Id.* at 20:44–50. “[E]xamples of mapped scores are click propensity[] expressed as a percentage, click-through-rate, and conversion propensity[] also expressed as a rate.” *Id.* at 20:54–56.

3. *Yang (Ex. 1006)*

Yang is an IEEE conference publication titled “Segmenting Customer Transactions Using a Pattern-Based Clustering Approach.” Ex. 1006, 1, 6, 12.⁶ Yang investigates the use of “pattern-based” clustering approaches to group customer transactions. Yang presents a new technique, YACA, “that groups transactions such that itemsets generated from each cluster, while similar to each other, are different from ones generated from others.” *Id.* at 12 (Abstract). Yang describes experiments for clustering user-centric Web transactions. *Id.* at 16–18.

⁶ All references to the page numbers in Yang refer to the page numbers inserted by Petitioner in the bottom, right-hand corner of each page in Exhibit 1006.

4. *Ramaiyer (Ex. 1009)*

Ramaiyer is a U.S. patent application publication titled “Profile Prediction For Shared.” Ex. 1009, code (54). Ramaiyer is directed generally to a profile prediction system that may identify one of multiple user profiles for a single computer. *Id.* at code (57), ¶ 9. For example, a home device’s user identification may be based on a “clustering model that considers various browsing characteristics to identify different clusters that each correspond to a particular user or user profile.” *Id.* at code (57).

B. *Claims 1–19 as Obvious over Grannan, Chung, and Yang*

Petitioner contends that Grannan, Chung, and Yang teach or suggest every limitation of claims 1–19. Pet. 11–62.

1. *Analysis of Independent Claim 1*

Petitioner contends that a combination of Grannan and Chung teaches or suggests every limitation of claim 1. Pet. 11–41. Patent Owner disagrees. Prelim. Resp. 14–32 (specifically addressing limitations b, c, d, and f of claim 1).

a) *Limitation [1a]: “determining a first quality level associated with a user profile”*

(1) *Petitioner’s Contentions*

For this limitation, Petitioner asserts “Grannan discloses *determining a first quality level* (product interest correlation (‘PIC’) score) that is *associated with a user profile* (subscriber’s profile).” Pet. 11; *see also id.* at 11–13 (citing Ex. 1007 ¶¶ 62–66, 73–77, 83–90, 105, 112; Figs. 2, 7).

Petitioner alternatively asserts, “[t]o the extent Grannan does not expressly disclose this limitation, . . . Chung discloses *determining a first quality level* (mapped score) *associated with a user profile*.” *Id.* at 13; *see*

also id. at 13–14 (citing Ex. 1005, 1:59–62, 4:66–5:4, 5:49–50, 20:9–27, 20:49–56; Figs. 3–4; claims 1, 7, 13 (generating user profile scores)).

(2) *Patent Owner’s Contentions*

Patent Owner does not provide arguments specific to limitation [1a].
See generally, Prelim. Resp.

(3) *Discussion*

For this limitation, we observe that Grannan teaches:

AKMS 108 monitors and compiles a *subscriber’s event data* including but not limited to current session and the device characteristics of the access device 104 being used to access IP-based services over an IP network 106, *along with previous usage history* to assist service providers and advertisers in evaluating the potential appeal of their services and advertisements to the particular subscriber.

Ex. 1007 ¶ 61 (emphases added). AKMS calculates a product interest correlation score and recommends/selects an advertisement, access device and advertisement modality to be used to send a selected advertisement to a selected subscriber access device based on the subscriber’s current usage scenario. *Id.* ¶ 62. Grannan further explains that a “total product interest correlation score is calculated by factoring in demonstrated levels of interest in a particular product category via a variety of *usage patterns for a subscriber.*” Ex. 1007 ¶ 90 (emphasis added).

Accordingly, based on the preliminary record, Petitioner’s assertions and Dr. Sherwood’s testimony appear to be supported for the purposes of institution.

b) *Limitation [1b]: “wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein the first quality level is determined based at least in part on at least one of: (1) a first search*

associated with the user profile or (2) a first purchase associated with the user profile”

(1) Petitioner’s Contentions

For this limitation, Petitioner first asserts that “Grannan discloses . . . that the *first quality level* (PIC score) is *based at least in part on an estimate of a likelihood of an event*, for example, the Grannan subscriber’s likelihood of purchasing a car.” Pet. 14 (citing Ex. 1003 ¶ 81; Ex. 1007 ¶¶ 73–76). Petitioner further asserts that Grannan’s use of “web spidering” matches “subscriber accessed URIs” with “a subscriber’s inferred intent.” *Id.* 14 (citing Ex. 1007 ¶¶ 73–76). Petitioner contends that “[t]he spidering system can ascertain not only that a subscriber visited a car manufacturer’s website to look at cars, but that the subscriber looked at the product page for a particular model in detail and requested mailing of a product brochure.” *Id.* Petitioner argues that the “subscriber’s inferred intent” derived from web spidering increases the subscriber’s PIC (product interest correlation) score for a product category. *Id.*

Petitioner additionally asserts, “Grannan also discloses, or at least renders obvious, that the *first quality level* (PIC score) is *determined based at least in part on a first search associated with the user profile*.” *Id.* at 15; *see also id.* at 15–16 (citing Ex. 1004 ¶ 84; Ex. 1007 ¶¶ 60, 65, 76, 80, 83–90, 98; Fig. 5).

Petitioner additionally asserts, “Grannan also discloses that the *first quality level* (PIC score) is *determined based at least in part on a first purchase associated with the user profile*” because “the final PIC score for each subscriber is tallied by evaluating several factors including ‘previous

purchases.”” *Id.* at 16 (quoting Ex. 1007 ¶ 90); *see also id.* at 16–17 (citing Ex. 1007 ¶¶ 57, 105; Fig. 5).

Alternatively, Petitioner contends, Chung discloses a “*first quality level* (mapped score) *based at least in part on an estimate of a likelihood of an event* (likelihood of an action in response to an advertisement)” because Chung’s user profile scores are mapped based on an estimate of the likelihood of user actions such as click propensity, click-through-rate, and conversion propensity. *Id.* at 17; *see also id.* at 17–18 (citing Ex. 1005, 4:66–5:57, 20:44–63).

Separately, Petitioner asserts that Chung discloses “the *first quality level* (mapped score) is determined based in part on a *first search associated with the user profile* (user search query)” because user search queries are input into Chung’s system and used to produce the mapped score. *Id.* at 18; *see also id.* at 18–19 (citing Ex. 1005, 4:66–5:57, 6:39–41, 6:62–7:2, 20:44–63; Abstract; Fig. 4). Petitioner contends a POSITA would have recognized that using web search queries, like Chung does, would improve Grannan’s PIC score as search queries were known to provide additional data points for gauging a user’s likelihood of making certain purchases. *Id.* at 19 (citing Ex. 1003 ¶ 91).

(1) Patent Owner’s Contentions

Patent Owner argues that “Petitioner does not identify a “first search” or “first purchase” used to determine “a first quality level.” *See* Prelim. Resp. 15, 24–32. More particularly, Patent Owner contends that a POSITA would not have considered Grannan’s web “surfing” to be a “search.” *See id.* at 29 (“[T]he Microsoft Computer Dictionary explains that ‘[a] search is carried out by a program through comparison or calculation to determine

whether a match to some pattern exists or whether some other criteria have been met,’ and a ‘search engine,’ ‘[o]n the Internet [is] a program that searches for keywords in files and documents found on the World Wide Web.’”) (citing Ex. 2003, 469). With regard to Chung’s disclosure, Patent Owner contends that Petitioner maps Chung’s same events to both the “first search” recited in limitation [1b] and the “second search” recited in limitation [1d] even though these are two separate limitations. *Id.* Patent Owner also contends that Petitioner does not identify any purchase in Grannan used to determine “a first quality level.” *See* Prelim. Resp. 25–30.

(2) *Discussion*

Based on the preliminary record, Petitioner’s assertions and Sherwood’s testimony appear to be supported for the purposes of institution. Grannan discloses that the “final product interest correlation score” for a subscriber is “tallied by *evaluating surfing habits*, TV viewing habits, personal profiles expressing proactive product interest, phone calling logs/habits, content of other communications tasks like IM, electronic mail, video telephony, and previous purchases.” Ex. 1007 ¶ 90. Elsewhere, Grannan reiterates that the disclosed system calculates a PIC score in a product or service category for the subscriber based on the monitored event data that includes “outgoing calls, telephone numbers called, *Internet access surfing history*, content consumption, music, videos and games, IM, text messaging, chatting, and locations of a subscriber, etc.” *Id.* ¶ 65 (emphasis added).

Looking to Chung, we agree at this juncture that Chung similarly discloses the use of an “user event” for calculating scores. Ex. 1005, Fig. 4. Figure 4 of Chung is reproduced below:

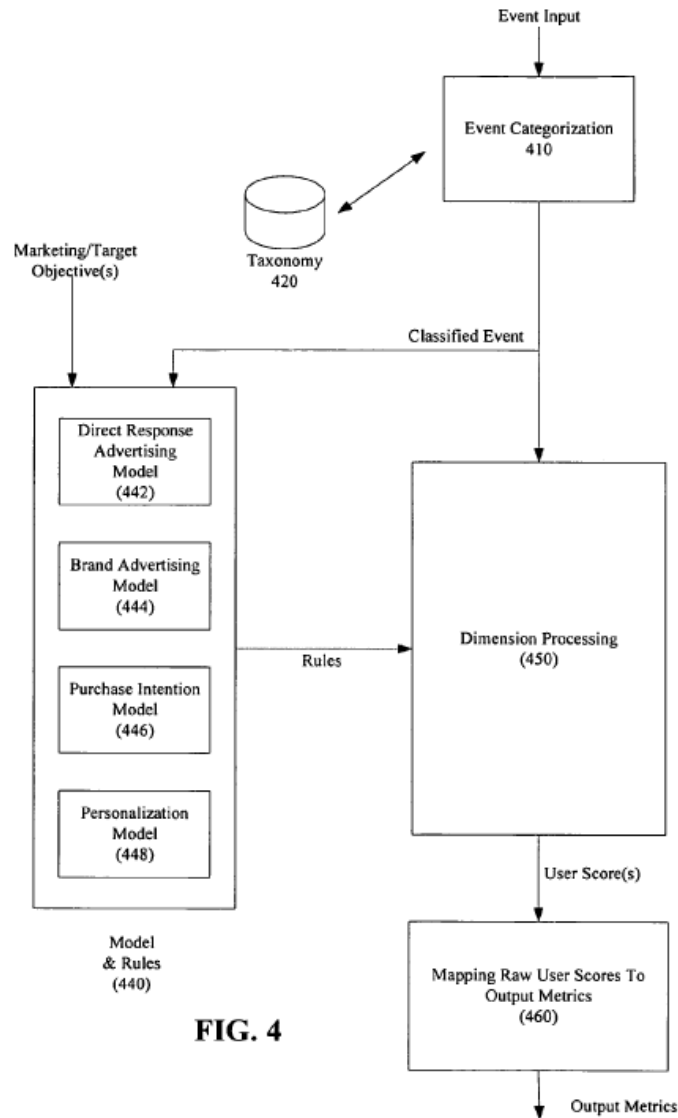


FIG. 4

Figure 4 is a block diagram that shows the disclosed behavioral targeting system. Ex. 1005, 2:4–6, 5:4–6. Chung discloses:

input events, referred to herein as “events”, are input to an event categorization module 410. The event categorization module 410 operates in conjunction with taxonomy 420. Specifically, the event categorization module 410 classifies each input event into a category in taxonomy 420. In general, taxonomy 420 defines a plurality of categories for classifying user interests.

Ex. 1005, 5:7–13. Chung further discloses:

[d]imension processing 450 also receives, as input, the classified event. In general, dimension processing 450 generates a user score, using the parameters, for the category. . . . [D]imension processing 450 accumulates events for processing over a specified period of time. For example, in one embodiment, dimension processing 450 *accumulates events to generate a short-term user interest score. In another embodiment, dimension processing 450 accumulates events over a longer period of time (e.g., over a month) so as to formulate a long-term user interest score.*

Id. at 5:38–48 (emphases added). The user interest score is then input into mapping module 460 that maps raw user scores to one or more output metrics, such as the propensity of a user to click on an advertisement classified in the category. *Id.* at 5:49–57.

Additionally, Chung discloses expressly that “events” include “advertisement clicks, *search queries, search clicks*, sponsored listing clicks, page views, and advertisement views.” Ex. 1005, 6:38–41 (emphasis added). Chung further discloses:

[a] search query event occurs when a user submits one or more search terms on a web based search engine. For example, a user may submit the query “Deep Sea Fishing”, and a corresponding search query event is recorded with the search terms “Deep Sea Fishing.” In response to a user query, a web based search engine returns a plurality of links to web pages relevant to the search query terms. If a user clicks on one of the links, a search click event occurs.

Ex. 1005, 6:62–7:2.

Based on the preliminary record, this disclosure in both Grannan and Chung supports Dr. Sherwood testimony:

a POSITA would have recognized that using web search queries would further improve Grannan’s PIC score as search queries

provide an additional data point in gauging the user's likelihood in making a certain purchase. As such, this would have been nothing more than the use of a known technique to improve the Grannan system in the same way that it improves the Chung system in a predictable way. And in my opinion, the modification would have required a simple change to the software algorithm that calculates the PIC score, a change that was well within the skillset of a POSITA at the time.

Ex. 1003 ¶ 91 (emphases added). As discussed, Grannan contemplates the use of monitored event data to calculate PIC scores for a subscriber in a product or service category, and Chung teaches that event data may include searches. Moreover, we note that Patent Owner does not contest that Chung discloses user search queries are events used to determine user scores. *See* Prelim. Resp. 30 (“[A]lthough Chung describes ‘search queries’ as potential events, EX1005, 6:38-41, Petitioner does not identify ‘a second search’ relevant to element [1d] that is different from ‘a first search’ identified for element [1b].”). Rather, Patent Owner contends that Petitioner has not identified multiple searches in Chung to satisfy both limitations [1b] and [1d]. *Id.* at 31.

We note that Patent Owner also argues that Petitioner has not explained how the asserted combination discloses or suggests “a first purchase.” Nevertheless, we observe that limitation [1b] recites “(1) a first search associated with the user profile *or* (2) a first purchase associated with the user profile.” Ex. 1001, 17:59–61 (emphasis added). In other words, one or the other is adequate to satisfy this claim feature.⁷ Petitioner has

⁷ When a claim covers several alternatives, the claim may be unpatentable if *any* of the alternatives within the scope of the claim are taught by the prior art. *See Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001).

provided sufficient explanation at this juncture for how the asserted combination of references discloses “a first search” as required by limitation [1b]. Nonetheless, the parties may further develop the record on this issue after institution.

c) *Limitation [1c]: “and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering”*

(1) *Petitioner’s Contentions*

For this limitation, Petitioner asserts “Grannan discloses that *determining of the first quality level* (PIC score) *is based at least in part on a unique identifier* (unique user profile data, demographics and past behavior/settings).” Pet. 19; *see also id.* at 19–21 (citing Ex. 1007 ¶¶ 56, 73–76). Petitioner adds that it would have been obvious to a POSITA to “*determin[e] ... the first quality level ... based at least in part on a unique identifier and clustering*” because Yang discloses pattern-based clustering and the “differentiating between multiple users of the same computer[] based on identifying clusters of user behavior (i.e., clustering) was a known technique.” *Id.* at 21; *see also id.* at 21–22 (citing Ex. 1006, 13, 16–18). Petitioner explains:

As both Grannan and Chung are centered on determining a PIC score or mapped user profile score associated with unique users in order to best target such users in a personalized way, a POSITA at the time encountering the problem of identifying unique individuals in shared computer/subscriber [identifier (“ID”)] situations would have found it obvious to modify the Grannan/Chung combination to improve it with a known clustering technique, such as that disclosed in Yang, to identify individual users for targeted advertising. EX1003, ¶96.

Therefore, it would have been obvious to a POSITA to use Yang’s clustering of user behavior in Grannan (or the

Grannan-Chung combination) to differentiate between unique users on a shared device, so as to determine which user profile information to use for calculating the *first quality level* (PIC score).

Id. at 23.

(2) *Patent Owner's Contentions*

Patent Owner argues that Petitioner maps Grannan's user profile to both the "user profile" and "unique identifier" recited in claim 1. Pet. 15–16. As such, Patent Owner contends that a user profile is not the same as an identifier, and that Petitioner's mapping of the user profile to the claimed "unique identifier" runs counter to both the intrinsic and extrinsic evidence. *See id.* at 16–19.

(3) *Discussion*

To Patent Owner's point, Petitioner does refer to Grannan's "user profile" to satisfy both the "user profile" and "unique identifier" recited in claim 1. *See* Pet. 19–20. Nonetheless, we observe that Grannan discloses that "[u]ser profile data includes but is not limited to ages, family size, ethnicity, language spoken, address, *subscriber user identifiers for family members*, etc." Ex. 1007 ¶ 73 (emphasis added); *see* Pet. 20 (citing and quoting Ex. 1007 ¶ 73). In addition, Grannan discloses a subscriber is enrolled by creating a "single sign-on (SSO) information 602 if one does not already exist, obtaining desired *subscriber ID and password with which to authenticate from all devices used henceforth*." *Id.* ¶ 107 (emphasis added). Grannan further discloses that "[Internet] profiling process 230 usually will be able to identify the subscriber via single sign-on (SSO) credentials, and then maintains a URI history log for the identified subscriber." *Id.* ¶ 86. "Alternatively, unique identifying information obtained from the access

device (e.g. cellular phone number, MAC address, product serial number) may be used to infer SSO credentials.” *Id.* In other words, Grannan’s user profile, as explained by Petitioner in the Petition (*see* Pet. 20), expressly includes identifiers for the subscribers. Moreover, as discussed, Grannan discloses that PIC scores are calculated for specific subscribers. *See* Ex. 1007 ¶¶ 61, 62, 65. In this way, the disclosures of the prior references are consistent with Petitioner’s argument that a POSITA would have understood Grannan’s user profile also contains unique identifiers for subscribers.

We further observe Yang explains that pattern-based clustering techniques can generate natural clusters from customer transactions. Ex. 1006, 13. Yang discloses that the paper combines “transactions with a known natural category — Web transactions from different users (without maintaining the user ID) – and examine how well pattern-based clustering does in separating transactions that belong to the individual users as compared to traditional clustering techniques.” *Id.* Dr. Sherwood further testifies that

the technique of differentiating between multiple users of the same computer, based on identifying clusters of user behavior (i.e., clustering) was a known technique at the time of the ’402 patent’s earliest priority date. For example, Yang teaches “[t]he idea of pattern-based clustering is not new,” and “there may be natural clusters in data, characterized by a set of typical behavioral patterns.”

Ex. 1003¶ 97 (citing Ex. 1006, 13, 18). Dr. Sherwood adds that “it would have been obvious to a POSITA to use Yang’s clustering of user behavior in Grannan or the Grannan-Chung combination to differentiate between unique users on a shared device, so as to determine which user profile information to use for calculating the first quality level (PIC score).” *Id.* ¶ 99.

Based on the preliminary record, Petitioner's assertions and Dr. Sherwood's testimony appear to be supported for the purposes of institution. The parties may further develop the record on this issue after institution.

d) *Limitation [1d]: "determining, for a user associated with the user profile, an indication of interest in a first category, wherein the indication of interest in the first category is determined based at least in part on at least one of: (1) a second search associated with the user profile or (2) a second purchase associated with the user profile"*

(1) *Petitioner's Contentions*

For this limitation, Petitioner asserts "Grannan discloses or renders obvious *determining, for a user associated with the user profile, an indication of interest in a first category* (contribution score)" because "a user's *first quality level* (PIC score) is updated in the AKMS using 'contribution score[s]' that reflect the user's interest in certain products and product categories" and "[c]ontribution scores are calculated based on URI links that a user may browse . . . in [a URI] category." Pet. 24 (citing Ex. 1007, ¶¶ 83, 100, 105); *see also id.* at 24–26 (citing Ex. 1007, ¶¶ 57, 83–84, 90). Addressing Grannan's "Susan example," Petitioner further asserts:

[A] POSITA would have recognized that the targeted ad from the AKMS was based on a PIC score for Susan that was calculated based on multiple ***contribution scores calculated from multiple purchases and web surfing in Susan's historic behavior***. As such, the *indication of interest* (contribution score) that led to the targeted ad, was based on *a second search associated with [Susan's] user profile* (second historic surfing/search, different than the first search discussed in [1b] above) and *a second purchase associated with [Susan's] user profile* (a second

historic purchase, different than the first one discussed in [1b] above).

Id. at 25–26 (citing Ex. 1003 ¶ 104).

Petitioner adds that, “to the extent that the ‘second search’ is not expressly disclosed by Susan’s historic web ‘surfing’ behavior, a POSITA would have found it obvious to calculate the contribution score based on Susan’s search queries, as it would have required nothing more than the use of a known technique to improve the Grannan contribution score in the same way.” *Id.* at 26 (citing Ex. 1003 ¶ 105). Petitioner contends that a POSITA would have recognized that information from search queries and search results would also be important in calculating a contribution score “because when a user searches for product information, they are more often than not interested in that product, sometimes for purchasing.” *Id.* at 27.

(2) *Patent Owner’s Contentions*

Patent Owner argues that Petitioner does not identify “a first search” separate from “a second search,” or “a first purchase” separate from “a second purchase.” Prelim. Resp. 24. Patent Owner contends that Grannan’s web surfing or browsing is not the same as searching. *Id.* at 28. Patent Owner thus maintains that Grannan’s contribution score is generated based on user browsing that is not the same as searching. *Id.* at 28–29. Patent Owner further contends that Chung is relied upon for the same search, not a second search different from the first search. *Id.* at 30 (“[A]lthough Chung describes ‘search queries’ as potential events, EX1005, 6:38-41, Petitioner does not identify ‘a second search’ relevant to element [1d] that is different from ‘a first search’ identified for element [1b].”), 31.

Patent Owner adds that Grannan does not teach that subscriber's contribution score (e.g., indication of interest) is calculated based on a subscriber's searches or purchases. *Id.* at 26 (“[N]owhere does Grannan disclose that these ‘previous purchases’ are used to calculate a contribution score.”), 25 (“Grannan’s ‘Susan’ example discusses only one, single purchase, which Petitioner relies on for the claimed ‘*third purchase*.”). Further, Patent Owner contends Chung does not teach the first or second purchases. *Id.* at 27.

(3) Discussion

Turning to Grannan, we observe that AKMS 108 provides messaging to ICSS 212 to update a subscriber's product interest correlation scoring matrix in real time. Ex. 1007 ¶ 84. For example, ICSS 212 may perform a database search of the URI or associated event data in the spidering results database 214 and, “if the URI or other event exists in the database, the specific product categories affected by the event are retrieved 506 along with their associated product interest correlation scores and updated in the product interest correlation score matrix for the subscriber.” *Id.* ¶ 100. Grannan discloses that “[t]he product correlation scoring matrix is updated dynamically for each subscriber in real time by the ICSS 212[.]” *Id.* at ¶ 83. Grannan further discloses that spidering process 214 may be run “as a supporting process, scanning the Internet (similar to search engine engines) and *classifying web links based on implied intent of subscribers visiting the page*.” *Id.* (emphases added). Grannan adds that the spidering information can be used to create a high product interest correlation “contribution score” for a particular product. The “contribution score” (e.g., indication of

interest) may be added to the subscriber's current product interest correlation score for a particular category. *Id.*

While Grannan does not disclose the web spidering of the user's searches, as discussed with regard to limitation [1b], we understand Chung expressly discloses search queries and searches as events that are used by Chung's system to generate user scores. *See* Ex. 1005, Figs. 4–5, 6:38–41. We further agree with Petitioner, at this preliminary stage, that a POSITA would have understood “events” to include searches and that it would have been obvious to modify Grannan to include searches (to the extent it doesn't already disclose searches) for determining PIC scores. *See supra* Sect. IV.B.1.b.

Moreover, contrary to Patent Owner's position, Petitioner does not rely on Chung's disclosure for a single search event or the same search. Rather, Petitioner explains that Grannan generates an initial PIC score that is then dynamically updated by a contribution score. Pet. 24–25. The initial PIC score is based on “a first search,” as discussed with respect to limitation [1b]. *See supra* Sect. IV.B.1.b. However, Grannan discloses that ICSS 212 may update a subscriber's product interest correlation scoring matrix in real time by adding the contribution score (e.g., indication of interest) that is based on a subscriber's behaviors after the initial PIC score is generated. *See* Ex. 1007 ¶ 83. Dr. Sherwood explains:

Grannan expressly teaches calculating an *indication of interest* (contribution score) for a user using information gathered from the user's browsing history. A POSITA would have recognized that information from other user events such as search queries and search results would also be important in calculating a “contribution score” because when a user searches for product

information, they are more often than not interested in that product, sometimes for purchasing.

Ex. 1003 ¶ 109, *see also id.* ¶ 85 (“[A] POSITA would have been motivated to improve the accuracy of the PIC score by using other information well-known at the time to indicate a user’s purchase likelihood, such as the user’s search engine queries.”). Based on the preliminary record, Petitioner’s assertions and Dr. Sherwood’s testimony appear to be supported by objective evidence of record. Nevertheless, the parties may further develop the record on this issue after institution.

e) Limitation [1e]: “storing, in a record associated with the user, the indication of interest in the first category”

For this limitation, Petitioner contends that “Grannan at least inherently discloses storing this contribution score ‘in a record associated with the user’ or renders it obvious because a POSITA would have recognized that the contribution score would have to be stored in a record so that it can be added to the PIC score as disclosed. Pet. 28–29 (citing Ex. 1007 ¶¶ 83, 113, Fig. 8; Ex. 1003 ¶ 111).

Patent Owner does not present any arguments specific to this limitation.

Based on the preliminary record, Petitioner’s assertions and Dr. Sherwood’s testimony appear to be supported. *See* Pet. 28. Nevertheless, the parties may further develop the record on this issue after institution.

f) Limitation [1f]: “subsequent to determining the indication of interest in the first category, determining, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a

third search associated with the user profile or (2) a third purchase associated with the user profile”

(1) Petitioner’s Contentions

For this limitation, Petitioner asserts that Grannan’s example of subscriber “Susan” teaches or suggests a need relative to the first category (i.e., interest in buying a children’s book) has been met based at least in part on at least one of a purchase (i.e., buying a children’s book) associated with the user profile. Pet. 30. According to Petitioner, Grannan discloses that “Susan” walks by a local book store and enters the store to make a purchase. *Id.* (citing Ex. 1007 ¶ 57). Petitioner adds that this purchase may be reported by merchant reporting the purchase or through a digital wallet transaction, and Grannan’s system will reflect the purchase in Susan’s PIC score in this product category. *Id.* at 30.

(2) Patent Owner’s Contentions

Patent Owner argues “Petitioner relies on Grannan and Chung to purportedly meet these elements of the claims, but Petitioner fails to establish that the cited references teach three searches or three purchases as recited and used in the independent claims.” Prelim. Resp. 19 (emphases omitted).

According to Patent Owner, the “independent claims require three searches or[, alternatively,] three purchases to be made.” *Id.* at 19; *see also id.* at 19–21. Patent Owner adds that, even if Petitioner could show that Grannan or Chung discloses “a first search” and “a second search,” Petitioner does not argue that either reference discloses “a third search.” *Id.* at 21. With regard to Grannan’s “Susan” example, Patent Owner asserts that that example only provides a single purchase. *Id.* at 22 (citing Ex. 1007 ¶¶ 56–57). Patent Owner further relies on *Palo Alto Networks, Inc. v. BT Americas Inc.*,

IPR2023-00888, Paper 9 (P.T.A.B. Nov. 17, 2023) (Decision Denying Institution) for the proposition that for “method” claims and “those that recite configuration,” Petitioner must show that the prior art actually “performs the step[s]” of the claim. *Id.* at 23.

(3) *Discussion*

Based on the preliminary record, we do not agree that the recitations of “first,” “second,” and “third,” alone requires three searches or, alternatively, three purchases as proposed by Patent Owner. To start, Patent Owner has not provided any basis for this claim construction. *See* Prelim. Resp. 9 (“[N]o term needs explicit construction to resolve any controversy between the parties.”), 19–23. Instead, Patent Owner contends that the use of “first,” “second,” and “third” is enough to presume there are three searches or, alternatively, three purchases.

Yet, our reviewing court has previously explained, the ordinal terms “first,” “second,” and “third,” are conventionally used in patent claims to distinguish between different elements. *See Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1373 (Fed. Cir. 2005) (“The terms ‘first, second, and third’ are terms to distinguish different elements of the claim”). Moreover, “first,” “second,” and “third” are not necessarily serial or numerical limitations. Instead, the “use of the terms ‘first’ and ‘second’ is common patent-law convention to distinguish between repeated instances of an element” and should not necessarily be interpreted to impose a serial limitation on a claim. *See 3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003).

Here, the express claim language does not require that a choice between “a first search” or “a first purchase” in limitation [1b] requires all

subsequent steps of the method to follow suit with only searches or, alternatively, only purchases. Indeed, the express use of “or” for limitations [1b], [1d], and [1f], indicates that each recited step may be based on “at least one” of a search or purchase at that particular step.⁸ This reading is consistent with the Specification that discloses broadly that “*one action (e.g., purchase or search)* can be indicative of an old need or interest being less likely now, and also of a new interest being likely.” Ex. 1001, 5:48–50 (emphasis added). In addition, we do not see, and Patent Owner has not directed us to, where the ’402 patent supports Patent Owner’s position that limitations [1b], [1d], and [1f] should be limited to three searches or, alternatively, three purchases.

In contrast, Petitioner has explained sufficiently for institution that Grannan combined with Chung teaches or suggests “a first search” (limitation [1b], “a second search” limitation [1d], and a “third purchase” limitation [1f] as described in Grannan’s example with subscriber Susan (Ex. 1007 ¶ 57). We agree, at this preliminary stage, that Grannan teaches an example where subscriber Susan’s purchase of a book (i.e. third purchase) and “recording of that purchase transaction within the AKMS now reduces or blocks her product interest correlation score for that book because “a need relative to the first category has been met.” *Id.*; Ex. 1003 ¶ 115. Further, to the extent applicable, the decision denying institution (Paper 9) in *Palo Alto Networks, Inc. v. BT Americas Inc.*, IPR2023-00888, Paper 9 (P.T.A.B. Nov. 17, 2023) does not require us to decide differently at this preliminary stage. Petitioner has explained sufficiently, for the purposes of

⁸ See *supra* n.8.

institution, how the proposed combination of Grannan, Chung, and Yang performs the steps of claim 1, including limitation [1f].

Based on the preliminary record, Petitioner's assertions and Dr. Sherwood's testimony appear to be supported. Nevertheless, the parties may further develop the record on this issue after institution.

g) Limitation [1g]: "based at least in part on the determination that the need relative to the first category has been met, determining an indication of interest in a second category, wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest"

(1) Petitioner's Contentions

For this limitation, Petitioner contends that Grannan teaches that the purchase of a book by a subscriber and the recording of that purchase reduces the indication of interest in a first category, but increases the subscriber's PIC score for additional products related to the book (i.e., the indication of interest in a second category). Pet. 32–33 (citing Ex. 1007 ¶ 57).

Patent Owner does not provide any arguments specific to this limitation.

Based on the preliminary record, Petitioner's assertions and Dr. Sherwood's testimony appear to be supported. Nevertheless, the parties may further develop the record on this issue after institution.

h) Limitation [1h]: "in response to determining that the need relative to the first category has been met, determining a second quality level associated with the

user, wherein the second quality level is determined with respect to the first category”

For this limitation, Petitioner contends Grannan teaches that the purchase of the product and recording of that purchase transaction within the AKMS may reduce a subscriber’s PIC score for a product. Pet. 34 (citing Ex. 1007 ¶ 57). Petitioner further refers to Grannan’s example of subscriber, “Susan,” whose PIC score is altered based on her purchase of a book. *Id.* As another example, Petitioner contends that Grannan teaches the AKMS determines if a purchase “represents a ‘deal-killer event’ 544 for certain product categories” that then reduces or zeroes out the subscriber’s PIC for that product. *Id.* (citing Ex. 1007 ¶ 105, Fig. 5; Ex. 1003 ¶ 122).

Patent Owner does not provide any arguments specific to this limitation.

Based on the preliminary record, Petitioner’s assertions and Dr. Sherwood’s testimony appear to be supported. Nevertheless, the parties may further develop the record on this issue after institution.

i) Limitation [1i]: “wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior”

For this limitation, Petitioner argues that Grannan’s first quality level (i.e., the PIC score) is based at least in part on a conversion assessment associated with the user profile (i.e., a subscriber’s “inferred intent,” such as purchasing a car). Pet. 35. Petitioner quotes and relies on Grannan’s disclosure that

[PIC] scoring aggregates weighting and scoring for web surfing history, behaviors and context across multiple devices including

more detailed knowledge of what transactions/interests were actually conveyed by subscriber web surfing and behavior . . . For example, the spidering system can anonymously ascertain that not only did a subscriber visit a car manufacturer's web site to look at cars; the subscriber actually looked at the product page for a particular model in detail and requested mailing of a product brochure. *The subscriber's **inferred intent** (in this case purchasing a Toyota Camry) derived by the web spidering system increases the subscriber's [PIC] score for a product category for Toyota Camry.*

Pet. 35–36 (citing Ex. 1007 ¶¶ 73–76; Ex. 1003 ¶ 124) (emphases added).

Petitioner further contends that a POSITA would have understood that Grannan's "inferred intent" to purchase a product is a *conversion assessment* because the inferred intent is a measure of how likely the subscriber will purchase the particular product, like the Toyota Camry. *Id.* at 36 (citing Ex. 1007 ¶¶ 24, 56, 70, 83, Fig. 7). According to Petitioner, the subscriber's "inferred intent" is based on historical click behavior, such as Internet sessions and web pages visited by a user and a user's web surfing URIs visited, telephone numbers called, IM and other activities. *Id.* at 36–37 (citing Ex. 1007 ¶¶ 56, 73, 76); *see also* Ex. 1003 ¶ 127 ("A POSITA would have understood that such user behavior (for at least Susan and the Toyota Camry examples) would have been determined from data such as historical mouse click behavior, as Susan and the Toyota Camry subscriber, would have needed to click on the aforementioned links and websites in order to access them through a browser.").

Patent Owner does not provide any arguments specific to this limitation.

Based on the preliminary record, Petitioner's assertions and Dr. Sherwood's testimony appear to be supported. Nevertheless, the parties may further develop the record on this issue after institution.

j) Limitation [1j]: "displaying an advertisement to the user based at least in part on at least one of the first quality level or the second quality level"

For this limitation, Petitioner contends that Grannan teaches advertisers can set PIC score thresholds for sending advertisements. *See* Pet. 39–41; Ex. 1003 ¶ 135.

Patent Owner does not provide any arguments specific to this limitation.

We note, as Petitioner points out, that Grannan teaches:

An advertiser may set a [PIC] score threshold of 20 for sending a text advertisement to a subscriber's cell phone, a [PIC] score threshold of 50 for sending a video advertisement to the subscriber's cell phone and set a [PIC] score threshold of 90 for sending a video advertisement to the subscriber's IPTV receiver.

Ex. 1007 ¶ 63.

Based on the preliminary record, Petitioner's assertions and Dr. Sherwood's testimony appear to be supported. Nevertheless, the parties may further develop the record on this issue after institution.

2. Conclusion for Claim 1

After considering the Petition and the Preliminary Response, and accompanying exhibits and testimony, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that claim 1 of the '402 patent would have been unpatentable over the asserted combination of Grannan, Chung, and Yang.

3. *Analysis of Independent Claims 10 and 19*

For the challenges of the remaining independent claims (10 and 19), Petitioner relies on principally the same arguments presented for independent claim 1. Pet. 54–58 (claim 10), 60–62 (claim 19). Patent Owner disputes these challenges via their assertions addressed above for independent claim 1. Prelim. Resp. 14 (“Both grounds fail for the same reasons because Grannan and Chung do not disclose or suggest key aspects of independent claims 1, 10, and 19.”).

For the reasons discussed above, Petitioner’s arguments are better supported at this juncture. After institution, the parties may further develop the record on these issues.

4. *Analysis of Dependent Claims 2–9 and 11–18*

Petitioner contends that the combination of Grannan, Chung, and Yang renders obvious claims 2–9 and 11–18. Pet. 42–53, 58–59.

Patent Owner does not specifically address the challenged dependent claims apart from the arguments presented for the independent claims discussed above. *See generally* Prelim Resp. Nonetheless, the burden of persuasion remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Based on the preliminary record, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing that claims 2–9 and 11–18 would have been unpatentable over the asserted combination of Grannan, Chung, and Yang. *See* Pet. 42–53, 58–59.

The parties are encouraged to develop the record on these issues after institution.

*C. Claims 1–19 as Obvious
over Grannan, Chung, and Ramaiyer*

Petitioner contends that a combination of Grannan and Chung teaches or suggests every limitation of the independent claims 1, 10, and 19, but alternatively asserts for limitations [1c], [10d], and [19c] that a “POSITA would have found it obvious to combine Grannan with Ramaiyer to disclose *wherein the determining of the first quality level is based at least in part on a unique identifier **and clustering**.*” Pet. 63; *see also id.* at 63–65 (explaining).

Patent Owner disagrees for the reasons addressed above for independent claim 1. Prelim. Resp. 14 (“Both grounds fail for the same reasons because Grannan and Chung do not disclose or suggest key aspects of independent claims 1, 10, and 19.”).

For the reasons discussed above, Petitioner’s arguments are better supported at this juncture. Furthermore, at this stage, Petitioner has provided arguments and supporting evidence sufficient to establish a reasonable likelihood that Petitioner would prevail in showing that the asserted combination of Grannan, Chung, and Ramaiyer renders claims 1–19 obvious. *See* Pet. 62–65. After institution, the parties may further develop the record on these issues.

V. 35 U.S.C. § 314(A) DISCRETION

In the Petition, Petitioner contends that we should not exercise our discretion to deny the Petition under § 314(a) based on the EDTX Litigation because the factors set forth in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (Order Authorizing Supplemental Briefing on Discretionary Denial) (precedential) (“*Fintiv*”) weigh against

discretionary denial. *See* Pet. 66–70. In the Preliminary Response, Patent Owner contends “[we] should exercise [our] discretion to deny the Petition because (1) *Fintiv* factors one through five support discretionary denial; and (2) the Petition does not provide a compelling, meritorious challenge (*Fintiv* factor six).” Prelim. Resp. 33; *see also id.* at 33–36 (arguing the six factors set forth in *Fintiv*). After Patent Owner filed its Preliminary Response, we granted Petitioner authorization to file a stipulation consistent with the stipulation filed in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (Decision Granting Institution) (precedential as to § II.A) (“*Sotera*”). Paper 11.

It is well-settled that institution of an IPR is discretionary. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he [U.S. Patent and Trademark Office] is permitted, but never compelled, to institute an IPR proceeding.”); 35 U.S.C. § 314(a) (“The Director *may not* authorize an [IPR] to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” (emphasis added)). In *Fintiv*, the Board discussed potential applications of *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (Decision Denying Institution) (precedential), as well as a number of other cases dealing with discretionary denial under § 314(a). *Fintiv* identifies a non-exclusive list of six factors parties may consider addressing, particularly where there is a related district court case involving the same patent and whether such a case provides any

basis for discretionary denial. *Fintiv*, Paper 11 at 5–16. Those factors are as follows:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Id. at 5–6. In evaluating the factors, we take “a holistic view of whether efficiency and integrity of the patent system are best served” by denying or granting institution of an IPR. *Id.* at 6.

A. Factor 1: whether the court granted a stay or evidence exists that one may be granted if this proceeding is instituted

Petitioner and Patent Owner represent that a motion to stay has not been filed in the district court proceeding. Pet. 66; Prelim. Resp. 33. However, Petitioner intends to seek a stay of “the recently initiated . . . (“EDTX Litigation”), if the Board institutes this proceeding.” Pet. 66.

“In the absence of specific evidence, we will not attempt to predict how the district court in the related district court litigation will proceed because the court may determine whether or not to stay an individual case, including the related one, based on a variety of circumstances and facts beyond our control and to which the Board is not privy.” *Sand Revolution II, LLC v. Cont’l Intermodal Grp.—Trucking LLC*, IPR2019-01393, Paper

24 at 7 (PTAB June 16, 2020) (Decision Granting Request for Rehearing) (informative) (“*Sand Revolution*”). If Petitioner were to file a motion to stay in the EDTX Litigation, we decline to speculate how the district court would rule on such a motion. Accordingly, this factor is neutral.

B. Factor 2: proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision

Petitioner contends that, when considering the median time to trial for the U.S. District Court for the Eastern District of Texas, the expected trial date in the EDTX Litigation would be 21.6 months from the filing of the complaint on August 21, 2024, thereby putting the trial date somewhere in June 2026. Pet. 67 (citing Ex. 1008, 1). Petitioner contends that this factor weighs against discretionary denial because the projected Final Written Decision in this proceeding would be at or around March 2026. *Id.* at 67.

Patent Owner contends that trial in the parallel litigation is scheduled to begin April 20, 2026. Prelim. Resp. 33 (citing Ex. 2001, 1). Patent Owner argues that, because the projected Final Written Decision in this proceeding is due at or around March 2026, this factor should be considered neutral. Prelim. Resp. 33.

The parties present us with the following two data points: (1) the median time to trial for the Eastern District of Texas of 21.6 months; and (2) a trial date of April 20, 2026. Ex. 1008, 1; Ex. 2001, 1. Beginning with the median time to trial for the Eastern District of Texas of 21.6 months, the complaint in the EDTX Litigation was filed on August 21, 2024, so the projected trial date would occur somewhere in June 2026. Ex. 1013, 69. With a projected Final Written Decision in this proceeding due at or around March 2026, this factor would weigh against discretionary denial. Turning

to the trial date of April 20, 2026, with a projected Final Written Decision in this proceeding due at or around March 2026, this factor would weigh against discretionary denial. Bottom line, using all data points provided by the parties, this factor weighs against discretionary denial.

C. Factor 3: investment in the parallel proceeding by the court and the parties

Petitioner contends that “the EDTX Litigation was just initiated on August 21, 2024” and, at the time of filing the Petition, no scheduling order had been entered by the district court. Pet. 67. Petitioner, therefore, asserts that this factor weighs against discretionary denial. *Id.* Patent Owner contends that there was an initial compliant filed against Petitioner on September 18, 2023, which was dismissed without prejudice, prior to the new complaint spawning the EDTX Litigation that was filed on August 21, 2024. Prelim. Resp. 34 (citing Ex. 2002). Patent Owner asserts that, since September 18, 2023, the parties have made significant investment in litigating the ’823 patent, including the start of discovery and the exchange of infringement and invalidity contentions. *Id.* (citing Ex. 2001, 4–5). Patent Owner, therefore, asserts that this factor weighs somewhat in favor of discretionary denial. *Id.*

We recognize that the parties have invested some effort in the EDTX Litigation, most notably the start of discovery and the exchange of infringement and invalidity contentions. Ex. 2001, 4–5. Significant effort, however, remains to be expended in the EDTX Litigation. For example, claim construction briefing does not begin until June 2025 and the claim construction hearing is not scheduled until October 2025. *Id.* at 4. Briefing

regarding dispositive motions is not scheduled to be completed until January 2026. *Id.* at 3. Accordingly, this factor weighs against discretionary denial.

D. Factor 4: overlap between issues raised in the petition and in the parallel proceeding

As we note above, after Patent Owner filed its Preliminary Response, Petitioner filed a *Sotera* stipulation. Paper 11. Petitioner’s *Sotera* stipulation “mitigates any concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *Sotera*, Paper 12 at 19 (citing *Sand Revolution*, Paper 24 at 12). Accordingly, this factor weighs against discretionary denial.

E. Factor 5: whether the petitioner and the defendant in the parallel proceeding are the same party

Petitioner contends that “[b]ecause Petitioner is a defendant in the EDTX Litigation, and because this Board is likely to reach the merits earlier than the district court, this factor weighs against discretionary denial.” Pet. 68. Patent Owner contends that “Petitioner is the defendant in the parallel district-court litigation . . . [a]nd the plaintiff in the parallel proceeding is the exclusive licensee of the ’402 patent, also a real part-in-interest in this proceeding.” Prelim. Resp. 35–36 (citing Ex. 1013). Patent Owner, therefore, asserts that this factor weighs against discretionary denial. *Id.* at 36.

The guidance in *Fintiv* with respect to this factor focuses on the relationship between a petitioner and a defendant in a related district court case—not the relationship of a patent owner (i.e., Security Technology, LLC) and a plaintiff in the related district court case (Security Technology,

LLC’s licensee, RavenWhite Licensing LLC).⁹ *Fintiv*, Paper 11 at 13–14. Because Home Depot is both Petitioner in this proceeding and the defendant in the EDTX Litigation, this factor weighs in favor of discretionary denial.

F. Factor 6: other circumstances that impact the Board’s exercise of discretion, including the merits

Petitioner contends that, because “[t]he [c]hallenged [c]laims are clearly invalid, [it has] not previously challenged any related patents based on the references relied upon in this [P]etition, and the ’402 patent has never been challenged in a post-issuance proceeding,” this factor weighs against discretionary denial. Pet. 69. Patent Owner contends that because “the Petition fails to establish that multiple claim elements are taught by the prior art” and Petitioner’s expert, Dr. Sherwood, “largely repeats the Petition verbatim without providing additional analysis or corroborating evidence,” this factor favors discretionary denial. Prelim. Resp. 36.

“[I]f the merits of the grounds raised in the petition seem particularly strong on the preliminary record, this fact has favored institution.” *Fintiv*, Paper 11 at 14–15; *see also Sand Revolution*, Paper 24 at 13 (explaining that, when a petition sets forth a strong case, “this factor weighs in favor of not exercising discretion to deny institution under 35 U.S.C. § 314(a)”). As we explain above in more detail, Petitioner’s arguments and evidence for the asserted grounds of unpatentability appear strong with respect to at least one claim. *See infra* Section IV. We recognize that Patent Owner has only submitted preliminary arguments and no testimonial evidence at this stage of

⁹ *See* Pet. 71 (“2. Related Matters . . . The ’402 patent is subject to the following actions: *RavenWhite Licensing LLC v. The Home Depot, Inc. et al.*, 2:24-cv- 00688 (EDTX).”).

the proceeding, and the record will fully develop during trial. Accordingly, this factor weighs against discretionary denial.

G. Summary

For the reasons we identify above, four factors weigh against discretionary denial, including: the projected Final Written Decision in this proceeding will likely issue before the trial date in the EDTX Litigation, there has been a minimal level of investment by the district court and parties in the EDTX Litigation, Petitioner's *Sotera* stipulation ensures no overlap between the issues raised in the Petition and in the EDTX Litigation, and Petitioner's preliminary showing of unpatentability with respect to at least one claim appears strong. One factor is neutral because a stay has not been requested in the EDTX Litigation. One factor weighs in favor of discretionary denial because Home Depot is both the Petitioner in this proceeding and the defendant in the EDTX Litigation. Consequently, when considering the factors as part of a holistic analysis, we decline to exercise our discretion under § 314(a) to deny this IPR.

VI. CONCLUSION

After considering the Petition and the Preliminary Response, and accompanying exhibits and testimony, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '402 patent is unpatentable. Accordingly, we institute an *inter partes* review of claims 1–19 on all grounds presented in the Petition with respect to these claims. 35 U.S.C. §314(a).

At this preliminary stage, we have not made a final determination with respect to the patentability of the challenged claims or any underlying

factual or legal issue. Our final determination will be based on the record as developed during the *inter partes* review.

VII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. §314(a), an *inter partes* review of claims 1–19 of the ‘402 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 ’402 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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