

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SPOTIFY USA INC.,
Petitioner,

v.

S.I.SV.EL. SOCIETA ITALIANA PER LO SVILUPPO
DELL'ELETTRONICA S.P.A.,
Patent Owner.

Case IPR2019-00522
Patent 8,490,123 B2

Before TERRENCE W. MCMILLIN, AMANDA F. WIEKER, and
MONICA S. ULLAGADDI, *Administrative Patent Judges*.

WIEKER, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

Spotify USA Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–19 (“challenged claims”) of U.S. Patent No. 8,490,123 B2 (Ex. 1001, “the ’123 patent”). Paper 2 (“Pet.”). S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell’elettronica S.p.A. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined 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.” 35 U.S.C. § 314; *see also* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”).

For the reasons provided below and based on the record before us, we determine that Petitioner has not demonstrated a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one of the challenged claims. Accordingly, we do not institute an *inter partes* review.

B. *Related Proceedings*

The parties identify the following matters related to the ’123 patent (Pet. 67–68; Paper 4, 1):

S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell’elettronica SpA v. Rakuten Kobo Inc., No. 1:18-cv-00068-GMS (D. Del.);

S.I.SV.EL. Societa Italiana per lo Sviluppo Dell’Elettronica S.p.A. v. Rhapsody International Inc., No. 1:18-cv-00069-MN-CJB (D. Del.); and

*S.I.SV.EL. Societa Italiana per lo Sviluppo
Dell'Elettronica S.p.A. v. Spotify USA Inc.*, No. 1:18-cv-00070-
MN-CJB (D. Del.).

C. The '123 Patent

The '123 patent is titled “Method and Device for Generating a User Profile on the Basis of Playlists” and issued on July 16, 2013, from U.S. Application No. 10/558,733, filed on May 26, 2004. Ex. 1001, (12), (21), (22), (45), (54).

According to the '123 patent, “[i]t is known in the art to use user preferences, e.g.[,] in the form of a corresponding user profile, to recommend content to users,” such as “a song, a movie, etc.” *Id.* at 1:20–22. However, the '123 patent identifies several problems associated with prior art techniques for obtaining user preferences. *Id.* at 1:35–65. First, the '123 patent contends that “explicitly asking the user to rate content” places a time consuming burden on the user. *Id.* at 1:36–37, 1:56–58. Second, the '123 patent contends that “observing the actual usage of content, e.g.[,] when content is played back,” is unreliable because devices typically do not register who is actually consuming that content (i.e., the user or some other party using the device). *Id.* at 1:37–38, 1:53–56. Moreover, the '123 patent contends that observing a single playlist to determine user preferences “can be an incomplete and only a partial expression for a partial user interest in a dedicated content area,” such as, e.g., rock music. *Id.* at 1:39–48. Finally, prior art systems that “learn from examples . . . do not efficiently analyze playlists composed by a user,” for example, by considering “how the playlists are made.” *Id.* at 1:59–64.

The '123 patent seeks to avoid these problems by providing “automated generation of a reliable user profile, which contains information

about the user's preferences with respect to different playlist aspects," wherein user preferences are determined based on a user's preexisting playlist(s). *Id.* at 1:65–2:5. The '123 patent explains that, "[s]ince users typically spend a lot of time and effort to manually create playlists of songs or other content they like, preference information provided by these playlists most likely has a high quality." *Id.* at 2:28–33, 2:50–53.

Thus, the '123 patent generates a user profile on a media device having playlists, wherein the media device may be a jukebox, set-top box, TV, PC, DVD player, radio, or VCR. *Id.* at 2:65–3:3. In a first step, if the media device includes multiple playlists belonging to multiple users, the device searches for a first set of playlists belonging to a given user. *Id.* at 3:57–4:6 (step 100). This step need not occur if the device only includes playlists belonging to the given user. *Id.* at 4:1–4.

Next, the device analyzes the first set of playlists to identify "playlist features" that express "properties of the whole list rather than . . . an individual song," such "tempo variance, number of different artists, relative tempo difference, one or more preferred genres, number of genre changes, a particular genre change (between two songs) being true, the genre change (between two other songs) being false, and the number of true and false genre changes between songs." *Id.* at 4:9–38 (step 200).

Third, the device generates a user profile based on the analyzed set of playlists and their actual use. *Id.* at 4:39–42 (step 300).

A user profile preferably comprises examples of songs, transitions and playlists the user likes or dislikes and is therefore composed of these in the generation in this step of the method. An example either falls in the preference class '+' (i.e. like) or in the preference class '-' (i.e. dislike). . . . The preference

examples are obtained from the edit and playback actions the user performs or performed on his playlists.

Id. at 4:46–57, 4:66–5:3; *see also id.* at 4:58–65 (also considering whether songs are skipped), 5:4–6:50 (performing statistical analyses).

Finally, recommended playlists are generated based on the user profile, wherein the newly generated playlists may have the same structure as the playlists considered in the preceding steps. *Id.* at 6:52–65 (step 400).

D. Illustrative Claim

The '123 patent includes 19 claims, all of which are challenged. Claims 1 and 11 are independent claims. Claim 1 is illustrative and is reproduced below.

1. A method of generating a user profile for a given user from at least one first playlist including a first sequence of content and being associated with the given user and stored on a media device, said method comprising:

automatically searching for the at least one first playlist among a plurality of playlists, wherein the plurality of playlists includes at least one of a second playlist and a third playlist, wherein the second playlist has a second sequence of content and is associated with a different user and the third playlist has a third sequence of content and is associated with the given user, and each playlist of the plurality of playlists including at least one identifying characteristic of content stored on the media device;

analyzing the at least one first playlist and automatically deriving from the at least one analyzed first playlist at least one playlist feature expressing at least one property of the at least one first playlist, the at least one playlist feature comprising an occurrence frequency or at least a content relationship of the plurality of playlists; and

automatically generating a user profile for the given user based on the analyzed at least one first playlist and the derived at least one playlist feature;

wherein at least one of the said searching, analyzing, and generating comprises use of computerized hardware including a processing element.

Ex. 1001, 8:31–55. Independent claim 11 includes similar limitations. *See id.* at 9:39–10:18; *see also* Pet. 8 (“Both [claims 1 and 11] require the same basic steps.”)

E. Applied References

Petitioner relies upon the following references:

Rosenberg et al., U.S. Patent No. 7,783,722 B1, filed Mar. 18, 2002, issued Aug. 24, 2010 (Ex. 1004, “Rosenberg”);

Dunning et al., WIPO Application No. WO 01/84353 A2, filed May 1, 2001, published Nov. 8, 2001 (Ex. 1005, “Dunning”);

Schaffer, WIPO Application No. WO 01/58145 A2, filed Jan. 25, 2001, published Aug. 8, 2001 (Ex. 1006, “Schaffer”);
and

Dunning et al., U.S. Patent No. 7,707,221 B1, filed Apr. 2, 2003, issued Apr. 27, 2010 (Ex. 1007, “Dunning ’221”).

Pet. 14–15. Petitioner also relies upon the Declaration of Dr. Benjamin Goldberg, Ph.D. (Ex. 1003). Patent Owner supports its Preliminary Response with a Declaration of Dr. Michael J. Pazzani, Ph.D. (Ex. 2001).

F. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–19 of the ’123 patent based on the following grounds. Pet. 14–15.

Prior Art	Basis	Claims
Rosenberg and Dunning	§ 103	1–3, 5–13, 15, 17, 18
Rosenberg, Dunning, and Schaffer	§ 103	4
Rosenberg, Dunning, and Dunning ’221	§ 103	14, 16, 19

II. DISCUSSION

A. *Claim Construction*

For petitions filed on or after November 13, 2018, a claim shall be construed using the same claim construction standard that would be used to construe the claim 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) (2018).

Petitioner filed its Petition on January 8, 2019. Paper 2. Thus, we apply the claim construction standard as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

Claim terms are generally given their ordinary and customary meaning as would be understood by one with ordinary skill in the art in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Phillips*, 415 F.3d at 1312–1317. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term.

1. *Means-Plus-Function*

Neither Petitioner nor Patent Owner propose construction of any claim term. Pet. 11; Prelim. Resp. 14. However, Petitioner states that “[a]lthough formal claim construction is unnecessary, [Petitioner] recognizes that the Board may determine that certain terms are means-plus-function limitations,” subject to 35 U.S.C. § 112 ¶ 6. Pet. 11. To that end, Petitioner

identifies what it contends to be the functions and corresponding structures for a “searching element . . .,” “analyzing element . . .,” and “generating element . . .,” *if* the Board finds these limitations to be written in means-plus-function format. *Id.* at 12–14.

Patent Owner “does not dispute Petitioner’s proposed construction of such means-plus-function terms for purposes of this Preliminary Response.” Prelim. Resp. 14.

These limitations, however, do not recite the term “means.” Therefore, these limitations trigger a rebuttable presumption that 35 U.S.C. § 112 ¶ 6 does not apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (2015). A party seeking to overcome that presumption may do so “if the challenger demonstrates that the claim term fails to ‘recite[] sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Id.* (citation omitted). If a party “fails to proffer sufficient evidence to meet its burden, the presumption, either for or against the application of § 112, ¶ 6, prevails.” *Apex Inc. v. Raritan Comp., Inc.*, 325 F.3d 1364, 1371–72 (Fed. Cir. 2003); *see Zeroclick, LLC v. Apple, Inc.*, 891 F.3d 1003, 1007–08 (Fed. Cir. 2018) (applying the presumption against application of 35 U.S.C. § 112 ¶ 6 where the challenging party “provided no evidentiary support for [its] position”).

Here, neither party affirmatively states whether 35 U.S.C. § 112 ¶ 6 applies to these limitations, and neither party offers any evidence to overcome the presumption against its application. Pet. 11–14; Prelim. Resp. 14. Instead, Petitioner identifies the possibility that 35 U.S.C. § 112 ¶ 6 might apply, but fails to take a position on its application, or present argument or evidence to rebut the presumption. Pet. 11 (“[T]he Board may

determine that certain terms are means-plus-function limitations.”), 12 (“If the Board finds that ‘searching element . . .’ is a means-plus-function term . . .”). Likewise, Patent Owner “does not dispute Petitioner’s proposed construction of such means-plus-function terms,” but does not take a position as to whether these limitations invoke 35 U.S.C. § 112 ¶ 6, in the first place. Prelim. Resp. 14.

Moreover, only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Neither party draws our attention to a controversy between the parties regarding the application of 35 U.S.C. § 112 ¶ 6.

Accordingly, on this record, we decline to adopt a construction under 35 U.S.C. § 112 ¶ 6.

2. “generating”

Independent claim 1 recites “automatically generating a user profile,” and independent claim 11 recites “a generating element adapted to automatically generate the user profile.” Ex. 1001, 8:50, 10:16. As noted above, neither Petitioner nor Patent Owner propose that any claim term be construed expressly. Pet. 11; Prelim. Resp. 14. However, Patent Owner implicitly construes “generating a user profile” in its Preliminary Response. Prelim. Resp. 34. We determine that this language warrants explicit construction, in order to resolve the patentability challenges before us.

In applying the prior art, Petitioner refers to “updating” or “modifying” a user profile, and “incorporating the results of [a playlist] analysis in user-specific profiles,” i.e., editing a user profile. Pet. 35–36 (citing Ex. 1003 ¶¶ 133–138). Petitioner does not attempt to show that “updating,” “modifying,” and editing are synonymous with “generating,” but nonetheless contends that these actions satisfy the “generating” limitation. *Id.* Similarly, Dr. Goldberg’s testimony does not explain how these actions are understood as “generating.” Ex. 1003 ¶¶ 133–138.

In response, Patent Owner makes a brief claim construction argument, contending that “[u]pdating does not equate to ‘automatically generating.’ ‘Updating’ as understood by a [person of ordinary skill] means working on an existing profile, channel, etc. ‘Generating’ as understood by a [person of ordinary skill] is not so limited and should be understood to mean creating a new profile.” Prelim. Resp. 34 (emphasis added). Patent Owner relies upon Dr. Pazzani’s testimony, which is consistent with Patent Owner’s position, but which does not cite supporting evidence. Ex. 2001 ¶ 66.

We determine that the intrinsic record, and extrinsic evidence, support Patent Owner’s construction of “generating a user profile” as “creating a new user profile.” We start with the language of the claims. Independent claims 1 and 11 recite that the claimed method and device generate a user profile “based on [an] analyzed at least one first playlist and [a] derived at least one playlist feature.” *See, e.g.*, Ex. 1001, 8:31–32, 8:50–52. Thus, the claims reflect that the user profile is generated from something *other than* an existing user profile, namely, a first playlist and a playlist feature.

The ’123 patent specification is consistent with the claim language. When describing the invention, the ’123 patent discloses only one user

profile—that which is newly created based on at least one existing playlist and a derived playlist feature. As shown in Figure 1, a new user profile is generated in step 300. *Id.* at 4:39–41. The ’123 patent explains that “[i]n step 300, the user profile is generated. It is based on said analyzed first set of playlists and their actual application, i.e., actual use.” *Id.* at 4:39–41; *see also id.* at 5:34–67 (“the user profile comprises counts, sums, etc. and/or percentages of categorical song metadata of playlists”). The ’123 patent does not disclose a single instance of a previously created, i.e., already existing, user profile, or that an existing user profile is updated or modified. This is consistent with the ’123 patent’s goal of developing high quality user profiles based on existing playlist information. *Id.* at 2:50–53.

Likewise, when discussing the step of *generating* recommended content, the ’123 patent refers to creating new content. *Id.* at 6:26–28 (explaining that the generated user profile is used “to generate new recommended playlists”), 6:54–57 (“generate new recommended playlists”), 6:58–65 (“statistical measures . . . can be applied to construct or generate one or more recommended playlists”).

In this manner, the specification is consistent with statements made by the patent applicant during prosecution. For example, in the Appeal Brief filed in response to the Examiner’s rejection, the applicant distinguished prior art to Chislenko by stating, “[i]n *Chislenko*, a user profile already exists, and *Chislenko* merely stores user ratings in the existing user profile. Thus at best, *Chislenko* edits a user profile, and [does] not generate it.” Ex. 1002, 71 (emphases added). Thus, the patent applicant expressly distinguished *generating* a user profile from *editing an already existing* user profile. *See also id.* at 36–37 (allowing the claims), 102, 204, 215.

This intrinsic evidence is consistent with the plain and ordinary meaning of “generate,” evidenced by dictionary definitions, which define the term as “to bring into existence : produce,” and which is synonymous with “create” or “originate.” Ex. 3001 (2005), Ex. 3002 (1985). Petitioner agrees that the “plain language of the claims” should be relied upon in this proceeding. Pet. 11.

Accordingly, on this record, we construe “generating a user profile,” as “creating a new user profile,” which does not include updating, adding to, modifying, or editing an existing user profile.

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented 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) objective evidence of non-obviousness.¹ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*,

¹ At this stage of the proceeding, Patent Owner has not presented objective evidence of non-obviousness.

441, F.3d 977, 988 (Fed. Cir. 2006)). Whether a combination of prior art elements would have produced a predictable result weighs in the ultimate determination of obviousness. *Id.* at 416–417.

“Both anticipation under § 102 and obviousness under § 103 are two-step inquiries. The first step in both analyses is a proper construction of the claims. . . . The second step in the analyses requires a comparison of the properly construed claim to the prior art.” *Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 933 (Fed. Cir. 2003). In the context of claims that invoke 35 U.S.C. § 112 ¶ 6, “a challenger who seeks to demonstrate that a means-plus-function limitation was present in the prior art must prove that the corresponding structure—or an equivalent—was present in the prior art.” *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1299–1300 (Fed. Cir. 2009) (citing *Donaldson*, 16 F.3d at 1193). “[I]t is firmly established . . . that a structural analysis is required . . . [and] a functional analysis alone will not suffice.” *Id.*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

C. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art would have “a bachelor’s degree (or higher) in computer science, electrical

engineering, computer engineering, or a related field” and “either (1) two years of industry experience, or research, in software development or (2) the equivalent educational experience (*e.g.*, a master’s degree or Ph.D. in computer science, electrical engineering, computer engineering, or a related field).” Pet. 10 (citing Ex. 1003 ¶ 105). Patent Owner contends that such a person would have either “(i) a B.S. in Computer Science or a closely related field with three or more years of experience in either embedded systems or recommendation systems or (ii) at least an M.S. in Computer Science,” wherein “[a]dditional education or experience may serve as a substitute for these requirements.” Prelim. Resp. 13 (citing Ex. 2001 ¶ 24).

Although the parties identify a slight difference in the number of years of industry experience (two versus three), we do not discern a significant difference between the parties’ assessments of relevant skill level. Accordingly, on this record, we apply the identification of a person of ordinary skill as set forth by Petitioner, and supported by the testimony of Dr. Goldberg. Our conclusions herein would not differ under Patent Owner’s identified skill level.

D. Obviousness over the Combined Teachings of Rosenberg and Dunning

Petitioner contends that claims 1–3, 5–13, 15, 17, and 18 of the ’123 patent would have been obvious over the combined teachings of Rosenberg and Dunning. Pet. 15–54. Patent Owner opposes. Prelim. Resp. 20–39, 40–45. For reasons that follow, we determine Petitioner has not demonstrated a reasonable likelihood of prevailing as to the challenged claims.

1. Overview of Rosenberg (Ex. 1004)

Rosenberg is a U.S. patent titled “Personalized Audio System and Method,” which discloses “updating audio channel profiles that are used to create personalized audio channels.” Ex. 1004, (54), Abstract.

Rosenberg discloses “a personalized audio system 200,” including consumer device 202 and server 280, which is “designed to enable listener 110 (also referred to as user 110) to listen to and create one or more ‘personalized’ audio channels.” *Id.* at 3:54–57, 4:9–11, 5:23–26, Fig. 2 (depicting system). Specifically, Rosenberg discloses two types of audio channels: (1) personalized audio channels that are newly created by a user, and (2) pre-loaded, existing, default audio channels that are provided by a service provider and that may be further personalized by the user. *Id.* at 5:57–67, Fig. 6 (depicting examples of pre-loaded channels, e.g., “Rock,” “Jazz,” “Alternative”), Fig. 7 (depicting a user interface button to create a new channel).

According to Rosenberg, each audio channel is associated with a channel profile, which includes information related to a user’s song preferences, and which is used to inform the selection of songs to be played on that channel. *Id.* at 1:46–54, 6:4–10, Fig. 3 (depicting the channel profile for the “Jazz/Blues” channel). Rosenberg explains that channel profiles can be updated, including by receiving an indication when the user likes or dislikes a song or artist being played, or by activating a “modify” button on an appropriate user interface and modifying the profile directly. *Id.* at 1:55–65, 8:66–9:46, 21:19–26, Fig. 6 (depicting “modify” button 606), Fig. 8 (depicting user interface with options to like or dislike a given song).

Rosenberg discloses that, typically, the user does not control directly which songs are played on a given channel; rather, the user controls the channel's profile, which dictates the *types* of songs that will be played. *Id.* at 7:5–14. Thus, the user *indirectly* controls song selection. *Id.* “There is at least one exception to the above rule. User 110 may specify that a particular set of sound recordings is played in a particular order at a particular time if, and only if, user 110 owns a copy of each sound recording in the set.” *Id.* at 7:18–21.

Additionally, Rosenberg teaches that each channel has an associated playlist, either stored locally or on the server, which is created by a playlist generator or by a professional audio programmer. *Id.* at 10:28–33, 11:6–10, Fig. 4 (depicting the playlist for the “Jazz/Blues” channel). According to Rosenberg, each playlist has a high probability of being liked by the user because the majority of the songs in a given playlist match the profile of the audio channel, which is controlled by the user. *Id.* at 10:36–45. Again, Rosenberg discloses that the user cannot directly access or view the playlist, except that the user may have direct access to a playlist if they own every song in the playlist. *Id.* at 10:46–54.

Rosenberg discloses several examples of new playlist generation.

In one embodiment, when the last sound recording that device 202 selected is at or near the end of the playlist, device 202 will use playlist generator 288 to generate a new playlist 218.

In another embodiment, a new playlist 218 is generated on a periodic basis (i.e., daily, weekly, . . .).

In still another embodiment, a new playlist 218 is generated for a given active audio channel whenever the active audio channel's profile is updated.

Preferably, playlist generator 288 uses the existing playlist 218, the profile 219 associated with the existing playlist 218, and library catalogue 217 to create a new playlist 218.

Id. at 16:8–18 (internal paragraph breaks added).

2. *Overview of Dunning (Ex. 1005)*

Dunning is an International Patent Application titled “Relationship Discovery Engine,” which discloses a system, method, and program product that recommends items based on discovered relationships between content. Ex. 1005, (54), Abstract.

Dunning discloses that the system may be a “web-based jukebox” that is used “to generate track lists for personalized radio station[s]” based on an analysis of the music tracks previously selected by the user. *Id.* at Abstract, ¶¶ 43, 83. For example, each time the user selects a track to be played, the system accumulates information about the user’s track preferences. *Id.* ¶¶ 43, 45, 83; *see also id.* ¶ 106 (also storing repeats, aborts, and skips). Dunning’s system stores this information in a “play log” and generates a profile of the user. *Id.* ¶¶ 46, 83, 106. Dunning’s system uses the user profile, “demographic and other information,” and “learned artist relationships,” i.e., the “discovered relationships among tracks and/or artists,” to provide recommended tracks to the user. *Id.* ¶¶ 109, 151.

3. *Claim 1*

We have considered the Petition and the Preliminary Response, and we determine that Petitioner’s arguments and evidence are not sufficient to establish a reasonable likelihood of prevailing with respect to challenged claim 1. We limit our analysis to two limitations for which Petitioner’s contentions are inadequately supported and reasoned, detailed below.

i. “*automatically searching for the at least one first playlist among a plurality of playlists, wherein the plurality of playlists includes at least one of a second playlist and a third playlist, wherein the second playlist has a second sequence of content and is associated with a different user and the third playlist has a third sequence of content and is associated with the given user*”

a) “*Plurality of Playlists*” – Rosenberg

Petitioner contends that “Rosenberg teaches ‘a plurality of playlists’ with first, second, and third playlists associated with different users, because the system stores multiple playlists associated with multiple users.” Pet. 28–29. According to Petitioner, each personalized audio channel is associated with a particular user, and each channel also includes a playlist. *Id.* at 29 (citing Ex. 1003 ¶ 118). Petitioner also contends that Rosenberg teaches conventional broadcast channels, each also having a playlist. *Id.* (citing, e.g., Ex. 1004, 21:23–40, 6:1–11). Thus, Petitioner asserts that Rosenberg “teaches that its system has, at a minimum, channels and playlists associated with a given user, as well as channels and playlists associated with commercial entities such as a cable provider,” and that a given user “may create multiple custom channels and playlists.” *Id.* at 29 (citing, e.g., Ex. 1004, 5:23–31, 18:50–61, Figs. 6–8).

Patent Owner argues, *inter alia*, that conventional broadcast channels “are not associated with a different user,” as claimed, but rather “[t]hey are associated with no one in particular, because they are akin to radio stations.” Prelim. Resp. 29 (citing, e.g., Ex. 2001 ¶ 57).

As an initial matter, we accept Petitioner’s contention that Rosenberg teaches that a given user may create multiple audio channels (*see* Ex. 1004, 5:23–26), and that each channel includes a channel profile that the user can control to influence song selection (*id.* at 6:4–6, 7:5–9). Moreover, we

accept Petitioner’s contention that each channel may include a playlist that is consistent with the channel profile. *Id.* at 10:28–45. Thus, Petitioner provides sufficient support for its contention that Rosenberg discloses “a plurality of playlists,” including “first” and “third” playlists associated with a “given user,” because a given user may create two personalized channels, each of which includes a playlist.

However, we agree with Patent Owner that Petitioner does not demonstrate sufficiently that the playlists associated with Rosenberg’s “conventional broadcast channels” are “associated with a different user,” as claimed. Rosenberg explains that the device comes “pre-loaded with a variety of audio channels defined by a service provider,” e.g., channels devoted to rock, jazz, or blues (*id.* at 5:66–65, Fig. 6), and a playlist may be created for these channels (*id.* at 6:15–17, Fig. 4). These pre-loaded channels further “may be personalized by the user.” *Id.* at 5:66–67. However, prior to user personalization, these are simply default, shell, broadcast channels and playlists that have not yet been associated with *any* user. Petitioner and Dr. Goldberg do not establish sufficiently that these conventional broadcast channel playlists are associated with a “different user” as required by the claims. Pet. 28–29; Ex. 1003 ¶ 118). To the extent these playlists are “associated” at all, they are at best associated with the “service provider” that defined the channel. Petitioner has not shown that a generic service provider is a “user,” within the context of the claimed method steps.

b) “*Plurality of Playlists*” – *Dunning*

Petitioner also contends that “Dunning similarly teaches the existence of multiple playlists associated with different users,” because “Dunning

teaches a digital jukebox” that can be used by “multiple users.” Pet. 30 (citing Ex. 1003 ¶ 19). According to Petitioner, Dunning’s jukebox tracks a user ID, which is necessary for the system to “retrieve the user’s profile and practice the recommendation system.” *Id.* Petitioner also contends that “Dunning associates playlists with particular users automatically, because the system only tracks playlists after a user has been identified, and those playlists are associated with the identified user.” *Id.* (citing Ex. 1005 ¶¶ 151, 204–251).

First, we are not persuaded that Dunning teaches a “first playlist” and a “third playlist,” both associated with the “given user,” as claimed. Even if Dunning’s “play log” can be considered a playlist, the evidence cited by Petitioner demonstrates that only one play log is created for a given user. *See, e.g.*, Ex. 1005 ¶¶ 83 (“The system monitors the user’s behavior . . . and generates and analyzes logs of such behavior. . . .”), 106 (“[T]he user’s interaction with jukebox 103 . . . are recorded and stored in play log 114.”). Thus, Petitioner has not shown that two playlists (a “first” and a “third”) are associated with one “given user,” as required by the claim.

Second, even if Dunning taught the “plurality of playlists,” as claimed, Petitioner has not established that it would have been obvious to incorporate such a feature into Rosenberg. Petitioner contends that “it would have been obvious to incorporate *Dunning’s detailed explanation of how to analyze playlists* into Rosenberg to enable Rosenberg’s teachings that playlists should be analyzed to update profiles and recommend items.” Pet. 26 (emphasis added) (citing Ex. 1003 ¶ 85); *see also id.* at 24 (explaining that Rosenberg does not teach how to analyze playlists), 25 (explaining that a person of ordinary skill would have been motivated to

“investigate existing solutions for analyzing playlists in order to update profiles and generate recommendations”), 25–26 (explaining that Dunning teaches how to analyze playlists to identify relationships between playlist attributes). Thus, at best, even accepting Petitioner’s contentions, Petitioner provides articulated reasoning with rational underpinning *only* regarding why a person of ordinary skill would have found it obvious to modify Rosenberg to analyze playlists, as taught by Dunning, such that the combined system would “update profiles and recommend items,” as taught by Rosenberg. *Id.* at 26. Petitioner has not provided articulated reasoning with rational underpinning regarding any proposed modification to Rosenberg to satisfy the “plurality of playlists” limitation. *See also* Ex. 1003 ¶¶ 78–85, 119 (Dr. Rosenberg providing substantially identical testimony as set forth in the Petition).

c) “*Automatically Searching*” – *The Combination of Rosenberg and Dunning*

Even if we were to accept Petitioner’s contentions regarding the “plurality of playlists,” discussed above, we are not persuaded by Petitioner’s contentions regarding “automatically searching for the at least one first playlist among [the] plurality of playlists.”

Petitioner contends:

The combination of Rosenberg and Dunning further teaches “automatically searching” for a playlist among their plurality of playlists because Rosenberg teaches that this association of users and playlists is done automatically. For example, Rosenberg teaches that when the device “is at or near the end of the playlist, [it] will use playlist generator to generate a new playlist.” The new playlist is associated with a given channel (and therefore a given user), and creates a new playlist based on “the existing playlist, the profile associated with the

existing playlist, and library catalogue.” Rosenberg therefore teaches the automatic creation of new playlists that are automatically generated and associated with a particular channel and user.

Dunning similarly teaches that the system constantly monitors the user’s interactions with the jukebox, including the creation of track lists (i.e. playlists), which are “recorded and stored in [a] play log” that feeds into a user’s profile.

A POSITA would understand that both Dunning and Rosenberg teach “automatically searching” for playlists associated with particular users, because the systems teach being on the lookout for new playlists and then immediately associating those playlists with particular users as soon as they are added to the system.

Pet. 30–31 (internal paragraph breaks added) (citing Ex. 1003 ¶ 120; Ex. 1004, 16:8–18; Ex. 1005 ¶ 106).

Patent Owner argues, *inter alia*, that “Petitioner’s only cited proof for the ‘automatically’ element is testimony from its expert, Dr. Goldberg. The references themselves are silent with regards to the very automatic capabilities that allow for a system to overcome the ‘cold start problem’” experienced in the prior art. Prelim. Resp. 26 (citing Ex. 2001 ¶ 53), 26–28 (explaining that the cited portions of the references do not discuss “automatically”). Patent Owner also argues that Dr. Goldberg’s testimony is “riddled with hindsight” and contrary to the understanding of a person of ordinary skill, as evidenced by Dr. Pazzani’s testimony. *Id.* at 28–29.

Rosenberg

Regarding Rosenberg, Petitioner and Dr. Goldberg cite to the automatic association of users and playlists, as well as the automatic creation of new playlists, which are also automatically associated with a channel and user. *Id.* at 31 (citing Ex. 1003 ¶ 120; Ex. 1004, 16:8–18). However, this

discussion in the Petition does not address “searching” in any manner. Moreover, the cited portion of Rosenberg explains that “when the last sound recording . . . is at or near the end of the playlist, device 202 will use playlist generator 288 to generate a new playlist 218,” wherein “playlist generator 288 uses the existing playlist 218, the profile 219 . . . and library catalogue 217 to create a new playlist.” Ex. 1004, 16:8–18. Neither Petitioner nor Dr. Goldberg explain persuasively how this action relates to “searching . . . among a plurality of playlists,” as claimed.

To the contrary, Rosenberg teaches that a given playlist may be created for a given channel. *See, e.g., id.* at 10:30–32 (“[I]n one embodiment, each active audio channel has an associated playlist 218.”), Fig. 4 (“Play-List For Audio Channel: Jazz/Blues”). That playlist is associated with the channel through which it is created and is stored on the device or server for use in selecting which songs to play when the channel is activated by the user. *Id.* at 10:28–30 (“[T]o facilitate the selection of songs . . ., there exists a personalized playlist 218 for each active audio channel defined within system 200.”), 15:60–67 (stored on device), 16:25–28 (stored on server), Figs. 4, 14. Accordingly, Rosenberg does not disclose “automatically searching” for a specific playlist from among the plurality of playlists because each playlist is associated with *its own* channel. When a user selects a given channel for listening, the playlist associated with that channel is retrieved from storage—it need not be searched for, because it is already associated with only the selected channel. *See id.* at Figs. 6, 8, 14. Likewise, the newly created playlist referred to by Petitioner (*see id.* at 16:8–18) also is already associated *only with the selected channel* because it is created within only that channel. *See, e.g., id.* at 15:60–16:18 (explaining

that the initial playlist is “associated with the selected audio channel,” the device “selects a sound recording that is listed in the playlist,” and “[w]hen the last sound recording that device 202 selected is at or near the end of the playlist, device 202 will use playlist generator 288 to generate a new playlist 218,” which is, therefore, associated with the same audio channel). Neither Petitioner nor Dr. Goldberg explain sufficiently how the accessing of a playlist that is already associated with a given and selected channel, or the creation of a playlist that is already associated with a given and selected channel, is understood to be “automatically searching” for the playlist from among a plurality of playlists. Pet. 30–31; Ex. 1003 ¶ 120.

Dunning

Regarding Dunning, Petitioner and Dr. Goldberg cite to Dunning’s monitoring of user interactions with a jukebox, and the storage of those interactions in a play log. Pet. 31 (citing Ex. 1005 ¶ 106). However, this discussion in the Petition does not address “searching” in any manner. Moreover, the cited portion of Dunning explains that “the user’s interaction[s] with jukebox 103, including track selection . . . are recorded and stored in play log 114,” which then is used to generate and update a profile. Ex. 1005 ¶ 106. Again, however, this does not speak to “automatically searching.” Even if Dunning’s play log is considered to be a playlist, neither Petitioner nor Dr. Goldberg explain sufficiently how the monitoring of interactions, and storage of those interactions in a play log, are understood as “automatically searching” for that play log, from among a plurality. Pet. 30–31; Ex. 1003 ¶ 120. Indeed, as discussed in Section II.D.3.i.b., Dunning does not disclose the “plurality of playlists,” as claimed.

Moreover, even if Dunning taught the “automatically searching” limitation, Petitioner has not established that it would have been obvious to incorporate such a feature into Rosenberg, for the same reasons discussed in as discussed in Section II.D.3.i.b. Petitioner contends that “it would have been obvious to incorporate *Dunning’s detailed explanation of how to analyze playlists* into Rosenberg to enable Rosenberg’s teachings that playlists should be analyzed to update profiles and recommend items.” Pet. 26 (emphasis added); *see also id.* at 24–26. Thus, at best, even accepting Petitioner’s contentions, Petitioner provides articulated reasoning with rational underpinning *only* regarding why a person of ordinary skill would have found it obvious to modify Rosenberg to analyze playlists, as taught by Dunning, such that the combined system would “update profiles and recommend items,” as taught by Rosenberg. *Id.* at 26. Petitioner has not provided articulated reasoning with rational underpinning regarding any modification to Rosenberg to satisfy the “automatically searching” limitation.

Combined Teachings

Finally, in reliance upon the teachings discussed above, Petitioner contends that a person of ordinary skill in the art “would understand that both Dunning and Rosenberg teach ‘automatically searching’ for playlists associated with particular users, because the systems teach being on the lookout for new playlists and then immediately associating those playlists with particular users as soon as they are added to the system.” Pet. 30–31 (internal paragraph breaks added) (citing Ex. 1003 ¶ 120). As discussed above, neither Rosenberg nor Dunning teach automatically searching for a first playlist, as claimed. Additionally, neither Petitioner nor Dr. Goldberg

explain how “being on the lookout for new playlists” constitutes “automatically searching for the at least one playlist among a plurality of playlists,” consistent with Petitioner’s contentions regarding “a plurality of playlists,” discussed above. Therefore, Petitioner has not identified a sufficient evidentiary basis for the conclusion that this limitation would have been obvious, or for Dr. Goldberg’s testimony asserting the same. *See also supra* page 25 (discussing Petitioner’s failure to provide articulated reasoning with rational underpinning for the proposed combination, with respect to this limitation).

ii. “*automatically generating a user profile for the given user based on the analyzed at least one first playlist and the derived at least one playlist feature*”

Petitioner contends that “[b]oth Rosenberg and Dunning teach that the analysis of a user’s playlist is for the purpose of *updating* the profile associated with that user.” Pet. 35 (citing, e.g., Ex. 1003 ¶¶ 133–138) (emphasis added). Petitioner contends that Rosenberg’s audio channel profile is “merely a collection of the features a user likes in his or her playlists,” and Dunning’s profile database “contains user-level profiles that encode personal listening behavior of particular users.” *Id.* According to Petitioner, a person of ordinary skill in the art “would therefore understand that both Rosenberg and Dunning teach analyzing user playlists is to *incorporate* the results of that analysis in user-specific profiles.” *Id.* at 35–36 (emphasis added).

Moreover, Petitioner contends that “this generation of a user profile is done ‘automatically.’” *Id.* at 36. According to Petitioner:

Rosenberg explicitly teaches ‘*modifying* at least one . . . channel profile[] in response to receiving the indication that the user likes

[content], further teaching that “*modifying* . . . channel profiles comprises the step of automatically adding an artist identifier.” A POSITA would understand that this teaches that a profile should be *updated* automatically when the system learns new information pertinent to a user’s profile. More generally, a POSITA would understand that both references teach systems meant to minimize the need for the user to provide input to the system. Given that the systems are designed to analyze playlists, *update* profiles, and provide recommendations with minimal user input, a POSITA would understand that the methods taught by both Rosenberg and Dunning were meant to proceed from one step to the next step automatically wherever possible, including the step of generating a user profile based on the analysis of playlists.

Pet. 36 (emphases added) (internal citations omitted).

As discussed above, Patent Owner argues that “[u]pdating’ does not equate to ‘automatically generating.’” See Section II.A.2.; Prelim. Resp. 34. Patent Owner also argues that Rosenberg teaches away from the ’123 patent because Rosenberg’s audio channels require feedback, in a manner discouraged by the ’123 patent. Prelim. Resp. 35. Additionally, Patent Owner argues that Dunning analyzes only usage logs and listening histories, not playlists, which requires a user to listen to hours of songs before a profile can be created, as also discouraged by the ’123 patent. *Id.* at 36.

a) “*Updating,*” “*Modifying,*” “*Editing*”

As discussed in Section II.A.2., “generating a user profile” requires “creating a new user profile.” Thus, Petitioner’s contentions that Rosenberg and Dunning update, modify, or edit existing user profiles are insufficient to satisfy this limitation. Pet. 35–36.

b) *Rosenberg*

To the extent Petitioner contends that Rosenberg *creates* a new user profile, we are unpersuaded. Rather, as the Petition explains,

Rosenberg teaches two main types of profiles. The first are generic ‘pre-loaded’ profiles associated with pre-loaded channels containing popular genres such as Rock and Jazz. The second are ‘user-created’ profiles made by users who may fill them with details of the types of attributes of content preferred.

Pet. 17 (citing Ex. 1003 ¶ 53; Ex. 1004, 5:55–6:19, 18:50–20:8); *see also* Prelim. Resp. 35. These profiles are created for a given audio channel by either a service provider (pre-loaded) or by a user (user-created), and are not shown to be based upon at least one playlist and playlist feature, as required by the “generating” limitation. Ex. 1004, 5:59–60 (“Device 202 may be pre-loaded with a variety of audio channels defined by a service provider.”), 6:4–6 (“Each pre-loaded and user-created audio channel in system 200 has a profile 219.”), 20:9–12 (“The audio channel profile information specified by user . . . is stored in a channel profile 219.”).

To be sure, Rosenberg’s “‘pre-loaded’ profiles” and “‘user-created’ profiles” may be updated, modified, or edited, as Petitioner contends.

Pet. 35–36. Rosenberg explains:

There are at least two ways in which an audio channel’s profile may be modified. One way, which has been described already, is for user 110 to select more-button 806, like-button 808, or dislike-button 810. Another way is for user 110 to select an audio channel listed in box 602 and then activate modify-button 606.

Ex. 1004, 21:20–26. However, these changes are made to the *already existing* pre-loaded or user-created channel’s profile, as Petitioner appears to recognize. *See* Pet. 19 (“Analysis of the playlist can be used to *add artists*

and songs to a profile's list of most-liked or least-liked artists." (emphasis added)); *see also* Ex. 1004, Fig. 14 ("update profile" in steps 918, 920, 922).

c) *Dunning*

To the extent Petitioner contends that the combined teachings of Rosenberg and Dunning generate a new user profile, we are unpersuaded. Although not discussed by Petitioner in treating this claim limitation (*see* Pet. 35–36), Dunning teaches that "[l]og analysis module 113 analyzes play log 114 in order to generate a profile of the user, which is stored in a profile database." Ex. 1005 ¶ 106 (emphasis added); *see also* Pet. 22. Thus, in this embodiment, Dunning "generat[es] a user profile," although we do not reach whether it is based on the items recited in the claims.

Nonetheless, neither Petitioner nor Dr. Goldberg have established that it would have been obvious to incorporate profile generation, as taught by Dunning, into Rosenberg, for reasons similar to those detailed above in Section II.D.3.i.b. Petitioner contends that it would have been "obvious to incorporate *Dunning's detailed explanation of how to analyze playlists* into Rosenberg to enable Rosenberg's teachings that playlists should be analyzed *to update profiles and recommend items.*" Pet. 26 (emphases added) (citing Ex. 1003 ¶ 85); *see also id.* at 24 (explaining that Rosenberg does not teach how to analyze playlists), 25 (explaining that a person of ordinary skill would have been motivated to "investigate solutions for analyzing playlists in order to update profiles and generate recommendations"), 25–26 (explaining that Dunning teaches how to analyze playlists to identify relationships between playlist attributes). Thus, at best, even accepting Petitioner's contentions, Petitioner provides articulated reasoning with rational underpinning *only* regarding why a person of ordinary skill would

have found it obvious to modify Rosenberg to analyze playlists, as taught by Dunning, such that the combined system would “update profiles and recommend items,” as taught by Rosenberg. *Id.* at 26. Petitioner has not provided articulated reasoning with rational underpinning regarding any modification to Rosenberg to satisfy the “automatically generating a user profile” limitation. *See also* Ex. 1003 ¶¶ 78–85, 133–138 (Dr. Rosenberg providing substantially identical testimony as set forth in the Petition).

iii. Summary

Accordingly, for at least the reasons set forth above, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing as to challenged claim 1.

4. Claim 11

Independent claim 11 includes limitations substantially similar to those discussed above, regarding claim 1. *Compare* Ex. 1001, 8:31–55, *with id.* at 9:39–10:18. For example, claim 11 also includes limitations of “a searching element adapted to automatically search for at least one first playlist associated with the given user among a plurality of playlists . . .” and “a generating element adapted to automatically generate the user profile . . .” *Id.* at 9:39–10:18. With respect to these limitations, Petitioner identifies the same teachings of Rosenberg and Dunning discussed above regarding claim 1. Pet. 46–48 (“Aside from the introductory noun phrase, claim element [11a] is identical to claim [1a], so Rosenberg-Dunning teaches it for the same reasons.”), 50–51 (same regarding limitation [1d]).

Accordingly, for the same reasons, Petitioner’s contentions in this regard suffer from the same deficiencies discussed regarding claim 1, and

we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing as to challenged claim 11.

5. Dependent Claims 2, 3, 5–10, 12, 13, 15, 17, and 18

Petitioner contends that claims 2, 3, 5–10, 12, 13, 15, 17, and 18, each of which depends from claims 1 or 11, would have been obvious over the combined teachings of Rosenberg and Dunning. Pet. 38–47, 51–54.

However, Petitioner’s contentions regarding these dependent claims do not cure the deficiencies regarding independent claims 1 or 11, discussed above. Accordingly, for the same reasons, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing as to dependent claims 2, 3, 5–10, 12, 13, 15, 17, and 18.

E. Obviousness over the Combined Teachings of Rosenberg and Dunning, further in view of Schaffer or Dunning ’221

Petitioner contends that claim 4 of the ’123 patent would have been obvious over the combined teachings of Rosenberg, Dunning, and Schaffer (Pet. 55–62), and that claims 14, 16, and 19 would have been obvious over the combined teachings of Rosenberg, Dunning, and Dunning ’221 (*id.* at 62–67). Petitioner does not rely upon Schaffer or Dunning ’221 with respect to independent claims 1 or 11. *Id.* at 55–67.

Patent Owner argues that neither Schaffer nor Dunning ’221 cure the deficiencies in Petitioner’s contentions regarding independent claims 1 or 11, from which challenged claims 4, 14, 16, and 19 depend. Prelim. Resp. 39–40.

We agree with Patent Owner. Neither Schaffer nor Dunning ’221 are relied upon to cure the deficiencies identified above. Pet. 55–67. Therefore, for the same reasons discussed above regarding independent claims 1 and

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11, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing as to dependent claims 4, 14, 16, and 19.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has not demonstrated a reasonable likelihood it would prevail in establishing the unpatentability of any challenged claim of the '123 patent. Accordingly, we deny institution of an *inter partes* review.

IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that the Petition is *denied* as to all challenged claims, and no trial is instituted.

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