

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CALLMINER, INC.,
Petitioner,

v.

NICE LTD.,
Patent Owner.

IPR2020-00221
Patent 7,599,475 B2

Before KEVIN F. TURNER, TERRENCE W. McMILLIN,
and STACY B. MARGOLIES, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a); 37 C.F.R. § 42.14

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–10 of U.S. Patent No. 7,599,475 B2 (Ex. 1001, “the ’475 Patent”) are unpatentable, and has not shown, by a preponderance of the evidence, that claims 11–17 of the ’475 Patent are unpatentable.

A. *Procedural Background*

CallMiner, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–17 (“the challenged claims”) of the ’475 Patent, relying on the Declaration of Dr. Richard Stern. Paper 2 (“Pet.”); Ex. 1005 (“Stern Decl.”). NICE Ltd. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 7. Pursuant to our authorization (Paper 8), Petitioner filed a Reply to Patent Owner’s Preliminary Response. Paper 9. Patent Owner filed a Sur-reply In Support of Preliminary Response. Paper 10.

Pursuant to 35 U.S.C. § 314(a), on June 17, 2020, we instituted *inter partes* review on the grounds of:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 8–12, 14	103 ¹	Bachar, ² APA, ³ Freedman ⁴
3–7, 13, 15–17	103	Bachar, APA, Freedman, Conway ⁵

See Pet. 5; Paper 11 (“Inst. Dec.” or “Dec.”).

Patent Owner filed a Patent Owner Response (“PO Resp.”). Paper 20. Patent Owner filed the Declaration of Dr. Jordan R. Cohen (Ex. 2004) to support its positions. Petitioner filed a Reply (“Pet. Reply”) to the Patent Owner Response. Paper 23. Patent Owner filed a Sur-Reply to Petitioner’s Reply (“PO Sur-Reply”). Paper 27. An oral hearing was held on March 17, 2021. A transcript of the hearing is included in the record. Paper 36 (“Tr.”).

B. Related Matters

The parties identify *NICE Ltd. v. CallMiner, Inc.*, Civil Action No. 1:18-cv-02024 (D. Del.), filed on December 19, 2018, as a related matter. Pet. 3; Paper 4, 1.

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the ’475 Patent issued claims a priority date before this date, the pre-AIA version of Section 103 applies.

² U.S. Patent Publication No. 2005/0108775 A1 (filed November 13, 2003) (published May 19, 2005) (Ex. 1002, “Bachar”).

³ In its analysis, Petitioner relies on sections of the ’475 Patent (Ex. 1001, 1:16–2:2, 5:23–29) as Admitted Prior Art (“APA”). Pet. 37, 39, 41, 46–47, 51, 54.

⁴ U.S. Patent Publication No. 2004/0249650 A1 (filed July 14, 2004) (published December 9, 2004) (Ex. 1003, “Freedman”).

⁵ U.S. Patent Publication No. 2006/0262920 A1 (filed May 18, 2005) (published November 23, 2006) (Ex. 1004, “Conway”).

C. The '475 Patent

The '475 Patent is titled “Method and Apparatus for Generic Analytics” and issued on October 6, 2009, from an application filed on May 2, 2007. Ex. 1001, codes (22), (45), (54). The application for the '475 Patent claims priority to Provisional Application No. 60/894,230, filed on March 12, 2007. *Id.* at code (60). The '475 Patent relates to audio content analysis, specifically directed to retrieving business insight from auditory information. *Id.* at 1:12–14. With respect to the prior methods employed, the '475 Patent provides that speech to text engines consume significant time and computing resources, and that word spotting engines or phonetic search engines are faster than the speech to text engines but are generally efficient only for a limited word lists or a set of predefined syllables or word parts. *Id.* at 1:56–2:2.

To address the deficiencies of the prior processes, the '475 Patent describes a system that initially processes an audio signal to identify an event. Ex. 1001, 2:11–16. Additional processing is then performed using a possibly more resource-intensive tool on a section of the audio signal surrounding the event, and the result is analyzed. *Id.* at 2:16–22.

An exemplary system is illustrated in Figure 1, reproduced below (*id.* at 3:40–42):

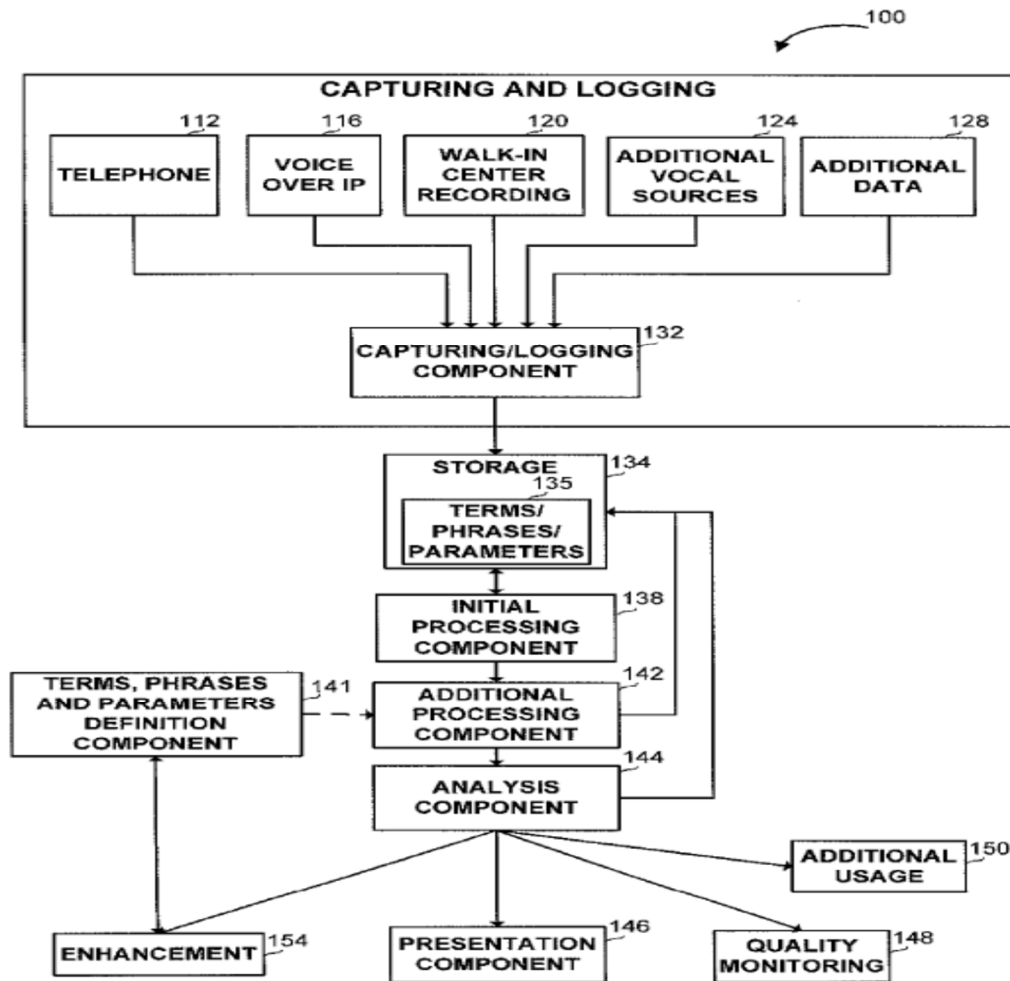


FIG. 1

A block diagram of the main components in a typical environment disclosed in the '475 Patent.

The '475 Patent details that capturing/logging component 132 captures interactions from a variety of sources, including telephone calls, and initial processing component 138 then processes an interaction using a faster or more efficient form of processing. Ex. 1001, 5:1–36, 59–67. The initial processing component identifies events (e.g., the word “account” being spoken) and associated times at which the events occurred (e.g., 30 seconds from the beginning of the interaction). *Id.* at 6:2–9. Information about the events and times are then transferred to additional processing

component 142 for the additional processing steps, activated only for these limited sections of the audio. *Id.* at 6:2–13, 25–28. The results from the initial processing and additional processing steps are then transferred to analysis component 144, which analyzes the results and reveals “significant business aspects, insights, terms or events in the [audio] segments.” *Id.* at 6:31–38, 54–61.

Challenged claims 1 and 11 are independent. Claim 1 of the ’475 Patent is reproduced below, with bracketed letters added to the limitations for reference purposes.

1. [a] A method for revealing an at least one aspect related to an organization from an audio signal, the method comprising the steps of:

[b] performing an initial processing on the audio signal for locating an at least one event within the audio signal, the at least one event associated with an at least one time indication within the audio signal;

[c] performing additional processing on a part of the audio signal, the part extending at least a first predetermined length of time preceding the least one time indication associated with the event and at least a second predetermined length of time following the at least one time indication associated with the event, the additional processing providing output related to the audio signal; and

[d] analyzing the at least one event and the output of the additional processing to reveal an at least one aspect related to the organization,

[e] wherein analyzing the at least one event and the output of the additional processing comprises at least one of the group consisting of: link analysis, root cause analysis, finding relations, finding connections, finding an at least one hidden pattern, and clustering of at least two audio segments based on the initial processing.

Ex. 1001, 10:40–62.

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art the time of the invention would have had “at least (i) a Master’s degree in computer science, electrical engineering, or a related subject and at least three years of experience implementing systems for performing speech analysis, or (ii) a Bachelor’s degree in computer science, electrical engineering, or a related subject and at least five years of experience implementing systems for performing speech analysis.” Pet. 9 (citing Ex. 1005 ¶ 34).

Patent Owner disagrees with Petitioner’s proposed qualifications, alleging that the subject matter of the ’475 Patent does not require the level of experience that Petitioner proposes. PO Resp. 8–9 (citing Ex. 2004 ¶¶ 51–52). Patent Owner asserts that a person of ordinary skill in the art with a Master’s degree need only have one year of experience, or with a Bachelor’s degree need only have two years of experience, or a Ph.D. degree with apparently no experience. *Id.* Petitioner responds that Patent Owner’s definition, “requir[ing] two years’ less experience than Petitioner’s definition,” does not affect how the prior art demonstrates the challenged claims unpatentability.” Pet. Reply 18.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art is also reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Considering the subject matter of the '475 Patent, the background technical field, and the prior art, we adopt Patent Owner's submission on the level of ordinary skill in the art. We agree with Petitioner that the minor change in the level of ordinary skill in the art does not affect whether the cited art demonstrates the patentability of the challenged claims. As such, we determine that a person of ordinary skill in the art the time of the invention would have had (1) a Ph.D. in electrical engineering, computer science, linguistics, or a related field; (2) a Master's degree in the same with one year of experience implementing systems performing speech analysis; or (3) a Bachelor's degree in the same with three years of experience implementing systems performing speech analysis." PO Resp. 8. However, even under Petitioner's definition of the level of ordinary skill, we reach the same conclusions below regarding patentability of the challenged claims.

B. Claim Construction

For petitions filed after November 13, 2018, the Board interprets claim terms in accordance with the standard used in federal district court in a civil action involving the validity or infringement of a patent. 37 C.F.R. § 42.100(b) (2019). Under the principles set forth by our reviewing court, the "words of a claim 'are generally given their ordinary and customary meaning,'" as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic*

Sofamor Danek, Inc., 469 F.3d 1015, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

We group this section by specific aspects of the challenged claims:
(1) claim terms recited in claim 1; (2) claim terms recited in claims 2 and 3;
(3) constructions applicable to claims 11–17.

1. Limitations of Claim 1

Petitioner proposes that the claim terms “link analysis” and “root cause analysis,” recited in claim 1, should have specific constructions, and that additional claim terms in claim 1 should be interpreted under “their plain and ordinary meaning.” Pet. 10–12 (citing Ex. 1005 ¶¶ 42–47). Patent Owner asserts that multiple limitations of independent claim 1 require specific constructions: “performing additional processing,” “link analysis” “root cause analysis” “finding relations” “finding connections” “at least one hidden pattern,” and “clustering of at least two audio segments.” PO Resp. 9–22. The parties provided further arguments regarding the constructions of these limitations in later papers. Pet. Reply 4–14; PO Sur-Reply 8–19.

a) “performing additional processing”

Patent Owner asserts that one of ordinary skill in the art would have understood “performing additional processing on a part of the audio signal,” as recited in claim 1, to mean “performing a process on a part of the audio signal other than word spotting, phonetic decoding, emotion detection, call flow analysis, or talk analysis that identifies additional terms not limited to the predetermined parameters of the initial processing.” PO Resp. 9–10 (citing Ex. 2004 ¶¶ 53–60). Patent Owner argues that the Specification of the ’475 Patent “draws a distinction between the techniques employed for the initial processing and the additional processing,” with the Specification never disclosing “using processes used in the initial processing for the

additional processing, nor does it disclose using the same process twice.” *Id.* at 10 (citing Ex. 2004 ¶ 56).

Petitioner responds that “the claim language itself does not exclude any type of audio single processing from ‘additional processing,’” and we should construe the subject limitation according to the words recited in that claim. Pet. Reply 4–5. Petitioner continues that the Specification does not contain any statement expressly defining “additional processing” or disclaiming any of the five audio signal processing techniques identified by Patent Owner from the scope of “additional processing.” *Id.* at 5. Rather, the Specification indicates that the types of processing are not limited to the examples in the Specification, and only details what may “preferably” be used in the different types of processing. *Id.* at 5–6 (emphasis omitted). Patent Owner responds that Petitioner’s cited examples do not identify techniques used for both initial and additional processing, thus supporting Patent Owner’s position that the processes used in each are unique. PO Sur-Reply 8–9. Patent Owner also cites to *Wireless Protocol Innovations, Inc. v. TCT Mobile, Inc.*, 771 F. App’x 1012, 1018 (Fed. Cir. 2019), arguing that the Specification of the ’475 Patent “repeatedly and uniformly describes the distinction between the initial and additional processing,” and that “additional processing” has not been shown to have an ordinary and customary meaning to skilled artisans. *Id.* at 9–11.

Under *Phillips*, we begin with the language of the claim itself. *Phillips*, 415 F.3d at 1314 (“the claims themselves provide substantial guidance as to the meaning of particular claim terms”). Here, claim 1 recites “performing an initial processing on the audio signal for locating an at least one event within the audio signal,” and “performing additional processing on a part of the audio signal.” Ex. 1001, 10:43–44, 47–48. It is clear from the

claim that the processing events, i.e., initial and additional processing steps, are separate processing steps, although the language of claim 1 does not recite the distinctiveness that Patent Owner asserts, i.e., that there cannot be any overlap in techniques that fall under the different processing steps. The initial processing must “locat[e] an at least one event,” and the additional processing must “provide[e] output related to the audio signal,” per claim 1. *Id.* Given the language of the claim, including the “comprising” recitation, we are not persuaded that the initial processing could not also provide some output related to the audio signal, of which the location of the event would generally fall under a type of output related to that signal. In other words, we are not persuaded that each processing step is fulfilled by a separate and distinct set of analysis processes.

Phillips also states that “[o]ther claims of the patent in question . . . can also be valuable sources of enlightenment as to the meaning of a claim term,” where “[b]ecause claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” *Phillips*, 415 F.3d at 1314. To that end, claim 8, which depends from claim 1, recites the processes that may comprise initial processing, specifically listing the types of processing that Patent Owner now seeks to exclude from its construction of “additional processing.” Adoption of Patent Owner’s construction could be viewed as incorporating the subject matter of claim 8 into claim 1 because Patent Owner seeks to delineate the specific processing techniques that “initial processing” encompasses and the specific, *different* processing techniques that “additional processing” encompasses. But such a construction would contradict the general claim construction principle that independent claim 1 is broader than dependent claim 8.

With respect to Patent Owner’s arguments regarding the Specification of the ’475 Patent, we are persuaded by Petitioner’s arguments that the Specification indicates that the types of processing are not limited to the examples in the Specification, and only details what may “preferably” be used in the different types of processing. *See* Ex. 1001, 3:64–4:5; 4:13–16; 4:22–26; 5:59–62; 5:62–67; 6:25–28; 8:47–54; 9:34–37. Although Patent Owner is correct that these examples do not identify techniques used for both initial and additional processing, we are not persuaded that the Specification clearly specifies any prohibition of using the techniques for any particular type of processing.

With respect to Patent Owner’s arguments applying *Wireless Protocol*, we are not persuaded that the case sheds significant light on the instant claim limitations. The claim term in *Wireless Protocol*, namely “grant pending absent state,” was identified as not having a “plain ordinary meaning,” such that the Specification had “decisive significance” in determining the term’s meaning. *See Wireless Protocol*, 771 F. App’x at 1018 (citing *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1124 (Fed. Cir. 2014); *Phillips*, 415 F.3d at 1315–16. This is in contrast to the terms being “initial processing” and “additional processing,” which use the non-technical words “initial” and additional.” Although Patent Owner cites to Dr. Stern’s testimony that “‘additional processing’ does not have a generally understood meaning in his field,” PO Sur-Reply 10 (citing Ex. 2002, 123:4–19), we are not persuaded that simply because a term does not have a specific meaning in a field, its meaning can only be ascertained through consultation with another source; a general term like “processing” can be understood even by a layperson, as opposed to an ordinarily skilled artisan, and still have meaning in limiting the scope of a claim.

To conclude, we are not persuaded that “additional processing” should be interpreted as requiring a processing technique different from the examples of “initial processing” described in the Specification, as Patent Owner alleges. As such, we determine that “performing additional processing on a part of the audio signal,” as recited in claim 1, should not be limited in the manner proposed by Patent Owner—namely, “performing a process on a part of the audio signal other than word spotting, phonetic decoding, emotion detection, call flow analysis, or talk analysis that identifies additional terms not limited to the predetermined parameters of the initial processing.”

b) “link analysis”

Petitioner asserts that the claim term “link analysis” should be interpreted to mean “a process that finds relationships.” Pet. 10. Petitioner asserts that such a construction is consistent with how the term is described in the Specification and how it is used in other publications assigned to Patent Owner. *Id.* at 11 (citing Ex. 1001, 8:16–23; Ex. 1005 ¶¶ 43–44; Ex. 1010 ¶ 99; Ex. 1012, 17:15–21; Ex. 1011, 11:3–6; Ex. 1013, 5:30–31; Ex. 1014 (Wikipedia article on link analysis)).

Patent Owner disputes that construction and argues that “wherein analyzing the at least one event and the output of the additional processing comprises . . . link analysis” should be construed as “a process that compares the output of the additional processing to the event to determine at least one related concept.” PO Resp. 13 (citing Ex. 2004 ¶¶ 61–67). Patent Owner also argues that Petitioner construction is redundant of “finding relations,” already recited in claim 1. *Id.* Patent Owner also argues that Petitioner’s construction does not consider “the requirement that the analysis be performed on specific data: ‘the at least one event *and* the output of the

additional processing to reveal an at least one aspect related to the organization.” *Id.* at 14.

Petitioner responds that Patent Owner’s expert testified that “finding relations” is what “link analysis” means in the context of the ’475 Patent claims. Pet. Reply 7 (citing Ex. 1021, 43:10–15, 41:12–42:12). Patent Owner responds that the intrinsic and extrinsic record establishes that “link analysis” must do more than find relationships, that it must compare the output of the additional processing to the event to determine at least one related concept, and that it must be distinct from the other analysis techniques of claim 1. PO Sur-Reply 13 (citing Ex. 2004 ¶¶ 63–67).

With respect to Patent Owner’s arguments that the analysis be performed on specific data, we are not persuaded that such a formulation of “link analysis” should be adopted. Claim 1 recites, in part, “wherein analyzing the at least one event and the output of the additional processing comprises at least one of the group consisting of: link analysis.” Ex. 1001, 10:57–59. As such, what is to be analyzed is already explicitly recited in the claim, such that it need not be repeated in a construction of the term “link analysis.” Denuded of the inputs, Patent Owner’s construction becomes “a process that determines at least one related concept.” It is not evident that there is a significant difference between “finding relationships” as proposed by Petitioner and “determining related concepts” as proposed by Patent Owner and that a meaningful dispute exists as to the construction of this term. And, as construing “link analysis” is not necessary for our patentability analysis, we do not provide a construction of this term.

c) “root cause analysis”

Petitioner asserts that the claim term “root cause analysis” should be interpreted to mean “a process aimed at revealing the reason or cause for the

at least one event.” Pet. 11. Petitioner asserts the Specification does not define or provide examples of the claim term, but it has been used in other publications. *Id.* at 12 (citing Ex. 1010 ¶ 99; Ex. 1011, 11:1–3; Ex. 1005 ¶ 46).

Patent Owner disputes this construction and argues that “wherein analyzing the at least one event and the output of the additional processing comprises . . . root cause analysis” should be construed as “a process that identifies output from the additional processing as the reason or cause for the at least one event.” PO Resp. 17 (alteration in original). Petitioner points out that Patent Owner does not dispute what root cause analysis identifies, but is proposing to improperly add a particular output of the analysis through its construction. Pet. Reply 8. Patent Owner responds that “Petitioner’s construction is incomplete and divorced from the language of the claim.” PO Sur-Reply 14. We disagree with Patent Owner.

To the extent that Patent Owner’s construction involves a larger portion of the claim than Petitioner’s construction, we understand Patent Owner’s emphasis on the “inputs” of the analysis, i.e., “root cause analysis” versus “wherein analyzing . . . root cause analysis.” With respect to the smaller claim limitation, “root cause analysis,” we agree with Petitioner that the parties largely agree: “the reason or cause for the at least one event.” This smaller limitation need not be construed based on its input because those elements are already explicitly recited in claim 1. As such, we continue to adopt Petitioner’s construction of “root cause analysis” as “a process aimed at revealing the reason or cause for the at least one event.”

d) “finding relations”

Patent Owner argues that “wherein analyzing the at least one event and the output of the additional processing comprises . . . finding relations”

should be construed as “a process that finds relations between the output of the additional processing and the event.” PO Resp. 18 (alteration in original). Patent Owner continues that a person of ordinary skill in the art would have understood that “‘finding relations’ instead identifies relationships between words from the initial term list used to identify events and the additional words surrounding the events.” *Id.* Patent Owner continues to emphasize what would be analyzed as inputs to the “finding relations” process, although those inputs are already explicitly recited in claim 1. *Id.* at 19.

We are not persuaded that the cited claim limitation needs an explicit construction. To the extent that Patent Owner is requiring that “find relations” should be construed as “a process that finds relations,” ignoring the explicitly recited inputs thereto, we determine this to provide no additional insight and merely shifts the words in an attempt to construe the claim limitation. To the extent that Patent Owner is implicitly arguing that “finding relations” is “determining words or phrases output from the additional processing having relationships with the event” (PO Resp. 19), we determine that this seeks to read into the claim the requirements of specific embodiments from the Specification. It is improper to read limitations from an embodiment described in the specification into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). Therefore, although we can agree that “finding relations” does mean “a process that finds relations,” we are not persuaded that such a construction provides any greater clarity. Further, requiring the process to occur “between the output of the additional processing and the event” is already explicitly provided for in claim 1.

e) *“finding connections”*

Patent Owner argues that “wherein analyzing the at least one event and the output of the additional processing comprises . . . finding connections” should be construed as “a process that identifies the frequency of occurrence of output from the additional processing relative to the event.” PO Resp. 20 (alteration in original). Patent Owner continues that Figure 3 of the ’475 Patent illustrates lines between terms used to identify events in the initial processing and additional terms found in the additional processing, where each line designates connection, i.e., frequent occurrences of the additional term. *Id.* (citing Ex. 1001, 8:51–9:13, Fig. 3).

We do not agree with Patent Owner’s construction. The claim term “finding connections” is broader than identifying the frequency of occurrence, and seeks to import a specific embodiment of the Specification into claim 1. But, it is not necessary for our patentability analysis to provide an explicit construction of this term, and thus, we do not.

f) *“finding an at least one hidden pattern”*

Patent Owner argues that “wherein analyzing the at least one event and the output of the additional processing comprises . . . finding an at least one hidden pattern” should be construed as “a process that finds an at least one hidden pattern between the output of the additional processing and the event.” PO Resp. 21 (alteration in original). Once again disregarding the inputs to the analysis process already explicitly recited in claim 1, Patent Owner seeks to construe the limitation “finding an at least one hidden pattern” as a process that finds an at least one hidden pattern. We determine such a construction to provide no additional insight and merely shift the words in an attempt to construe the claim limitation. We are not persuaded that such a construction provides any greater clarity. But, it is not necessary

for our patentability analysis to provide an explicit construction of this term, and thus, we do not.

g) “*clustering of at least two audio segments*”

Patent Owner argues that “wherein analyzing the at least one event and the output of the additional processing comprises . . . clustering of at least two audio segments based on the initial processing” should be construed as “a process that clusters similar audio segments by associating their events based on the output of the additional processing.” PO Resp. 22 (alteration in original). Patent Owner continues that “‘clustering’ must therefore utilize both claimed outputs (e.g., the events and the additional terms from the additional processing) to cluster similar audio interactions. *Id.* (citing Ex. 2004 ¶¶ 81, 117). As discussed above, given the explicit recitation of the event and the output of the additional processing, we need not require that such inputs be included in the construction of “clustering.” We are not persuaded that Patent Owner’s construction provides any greater clarity and we do not adopt the proffered construction in the analysis below. But, it is not necessary for our patentability analysis to provide an explicit construction of this term, and thus, we do not.

2. *Limitations of Claims 2 and 3*

Petitioner asserts that aspects of claims 2 and 3 are written in “step-plus-function” formulations, implicating 35 U.S.C. § 112 ¶ 6, and provides the recited acts disclosed in the Specification that Petitioner contends satisfy those functions. Pet. 12–15 (citing Ex. 1005 ¶¶ 50–58).

With respect to the “preprocessing step” recited in claim 2, Petitioner asserts that its function is “enhancing the audio signal,” and that the Specification discloses that optionally audio “segments undergo some preprocessing, such as speaker separation, noise reduction, or the like.” *Id.*

at 13 (citing Ex. 1001, 9:24–28). Petitioner asserts that the claim term is limited to the specific acts of separating the audio signal of one speaker from the audio signal of another speaker, reducing the noise of an audio signal, and their equivalents. *Id.* at 13–14 (citing Ex. 1001, 9:26–28; Ex. 1005 ¶ 52). With respect to the “presentation step” recited in claim 3, Petitioner asserts that its function is “presenting a presentation of the at least one aspect related to the organization.” *Id.* at 14. Petitioner asserts that the act corresponding to the function is “presenting the at least one aspect related to the organization in the form of one of a” graphic representation, textual representation, table representation, tabloid representation, or text file representation. *Id.* at 14–15 (citing Ex. 1001, 2:22–24, 2:39–48, 6:39–43, 8:29–9:8, 9:67–10:1, Fig. 3; Ex. 1005 ¶¶ 56, 57). Upon review of the Specification of the ’475 Patent and the subject claims, we preliminarily determined that Petitioner’s identification of the function and the specifically recited acts was sufficient, and adopted that formulation for purposes of institution. Dec. 10–11.

Patent Owner argues that Petitioner’s proposed acts are incomplete and overly broad with respect to claim 3, and that the ’475 Patent does not disclose the generic display of data, as Petitioner’s construction contemplates, but instead requires presenting the results of the analysis performed on “at least one event and the output of the additional processing.” PO Resp. 23–24. Patent Owner also argues that Petitioner’s proposed corresponding acts merely limit the presentation format, and that those acts also identify redundant formats without explanation. *Id.* at 24.

Petitioner responds that Patent Owner is seeking to improperly add limitations such as “the results of the analysis” and “a comparison of an event identified from the initial processing with the additional words

identified from the additional processing.” Pet. Reply 14. Patent Owner argues that Petitioner’s construction would only confine the term to a presentation *format*, which is inconsistent with Petitioner’s own citations to the Specification. PO Sur-Reply 20.

Claim 3 recites, in part, “a presentation step for presenting a presentation of the at least one aspect related to the organization.” Ex. 1001, 10:65-67. Patent Owner seeks to include the analysis performed on “at least one event and the output of the additional processing,” but independent claim 1, from which claim 3 depends, recites that the same analysis “reveal[s] an at least one aspect related to the organization.” *Id.* at 10:55–56. Claim 3 requires the presentation of the aspect, which is a result of the analysis, but not presentation of the analysis itself, per se. Petitioner’s identified act does specify that the aspect is presented and details forms of that presentation. We do not agree with Patent Owner that Petitioner’s construction details only the generic display of data because the identified act explicitly includes the aspect. We also disagree with Patent Owner that Petitioner’s characterization identification of redundant formats is improper, because Petitioner is merely quantifying the ways that the Specification details the presentation step.

With respect to claims 2 and 3, we continue to determine that Petitioner’s identification of the function and the specifically recited acts is sufficient, and adopt that construction for purposes of this decision.

3. *Limitations of Claims 11–17*

Petitioner provides “[a]lternative [c]onstructions” for terms in claims 11–17 that, according to Petitioner, “do not recite the word ‘means’ but otherwise define the claim elements functionally.” Pet. 15. Petitioner notes that “[t]here is a rebuttal presumption against invoking 35 U.S.C. § 112, 6th

paragraph, and that, “[a]ccordingly, Petitioner applies the prior art to these terms under their plain and ordinary meaning.” *Id.* at 15–16.

In the Institution Decision, we determined that we did not need to determine whether or not any of the terms in the claims of the ’475 Patent were explicitly mean-plus-function terms in order to make a decision on institution. Dec. 9. We did, however, indicate that if either party contends that any claim term is a means-plus-function term, it should provide a proper and complete supporting analysis, including a description of the corresponding structure disclosed in the Specification. *Id.* We further indicated that Petitioner’s analysis provided “citations to the Specification provided [that] are wide-ranging and are not sufficiently specific or explained to identify the portions of the Specification that describe the corresponding structure. *See* 37 C.F.R. § 42.104(b)(3).” *Id.* at 9 n.6.

In Patent Owner’s Response, Patent Owner asserts that “[c]laim 11 recites several ‘components’ that are means-plus-function terms requiring construction.” PO Resp. 24 (citing Ex. 2004 ¶ 86). Patent Owner further asserts that “Petitioner provides a wide-ranging list of citations instead of identifying corresponding structure for these terms, but fails to explain how its citations correspond to any function.” *Id.* at 26 (citing Pet. 15–20). Based on this, Patent Owner argues that Petitioner has failed to meet its obligation to explain how the challenged claims are to be construed under 35 U.S.C. § 112 ¶ 6, and that Petitioner’s obviousness grounds with respect to claims 11–17 fail because they lack this necessary analysis. *Id.* Patent Owner continues by identifying the function of each element asserted to be a means-plus-function limitation, along with assertions of the disclosed structure. *Id.* at 27–33 (citing Ex. 2004 ¶¶ 87–96; Ex. 2002).

Petitioner responds that Patent Owner’s analysis overlooks certain functions recited in claim 11, and asserts that “the alleged structure identified by Patent Owner is insufficient under [*Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015)] and §112.” Pet. Reply 15–18, 16 n.3. Patent Owner responds that Petitioner has found fault with Patent Owner’s analysis of the means-plus-function elements but has not identified specific structures as required by 35 U.S.C. § 112 ¶ 6. PO Sur-Reply 22, 24.

We concur with Patent Owner’s assertions that elements of claims 11–17 should be properly construed under 35 U.S.C. § 112 ¶ 6. We find Dr. Cohen’s testimony to be helpful in that he testifies that the “component” language of claims 11 and 13 are “functional terms,” and although those claims do not use the word “means,” he testifies that “a skilled artisan would need to review the specification to understand the scope and meaning of these terms.” Ex. 2004 ¶ 86. Dr. Stern’s testimony provides citations to the Specification, and attempts to provide the corresponding structure in Petitioner’s “alternative constructions.” See Ex. 1005 ¶¶ 60–61. As such, both parties acknowledge the functional natures of claims 11–17 and suggest the possibility that the claims need to be evaluated under § 112 ¶ 6. Weighing the testimony of both declarants and reviewing the language of independent claim 11 and claims dependent thereon, we are persuaded that those claims recite structures in functional terms such that they recite means-plus-function limitations.

We agree that Petitioner’s analysis provides citations to the Specification that are not sufficiently specific or explained to identify the portions of the Specification that describe the corresponding structure. For example, claim 11 recites “initial processing component for,” which Petitioner states has the function of “activating an at least one initial

processing engine,” and Petitioner cites to the Abstract, three figures and eleven sections of the ’475 Patent. Pet. 17–18. The citations are wide-ranging but not specific, so that no particular element from the Specification of the ’475 Patent is asserted by Petitioner to be structure invoked. For the next limitation of claim 11, “initial processing engine for,” nearly the same citations are provided with the same lack of specificity. Petitioner cannot be said to have provided specific structures to the functional limitations of claims 11–17 through the descriptions provided in the Petition. *See* Pet. 17–22.

As such, we determine by a preponderance of evidence that the Petition fails, under 37 C.F.R. § 42.104(b)(3), to challenge claims 11–17 with sufficient specificity. Thus, Petitioner has failed to establish based on a preponderance of evidence that claims 11–17 are unpatentable as obvious under 35 U.S.C. § 103. Given this, we limit our obviousness analysis to consideration of claims 1–10 below.

4. *Other Claim Terms*

We determine that it is not necessary to provide an express interpretation of any other claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

C. Alleged Obviousness of Claims 1, 2, and 8–10 Over Bachar, APA, and Freedman

Petitioner contends that claims 1, 2, and 8–10⁶ would have been obvious over Bachar, APA, and Freedman. Pet. 22–54. To support its contentions, Petitioner provides explanations as to how Bachar, APA, and Freedman teach each claim limitation and its contention that there is a motivation to combine the references. *Id.* Patent Owner argues that the proffered prior art does not teach all the claim limitations. PO Resp. 43–61. Petitioner responds in its Reply and Patent Owner counters in its Sur-Reply. Pet. Reply 21–23; PO Sur-Reply 2–8.

We begin our discussion with brief summaries of Bachar, APA, and Freedman, and then address the evidence and arguments presented.

1. Bachar (Ex. 1002)

Bachar is directed to an “apparatus and method for the event-driven analysis of media contents derived from customer interactions.” Ex. 1002, Abstract. Bachar recognizes that processing interactions are computing-resource intensive and discloses a system in which process steps of the analysis that are less demanding on resources are performed prior to more demanding types of analysis. *Id.* at Abstract, ¶¶ 8, 16. An exemplary diagram of the apparatus of Bachar is illustrated in Figure 1, reproduced below (*id.* ¶ 12):

⁶ We acknowledge that claims 11, 12, and 14 were also asserted under this ground of unpatentability but have been omitted from consideration per Section II.B.3 *supra*.

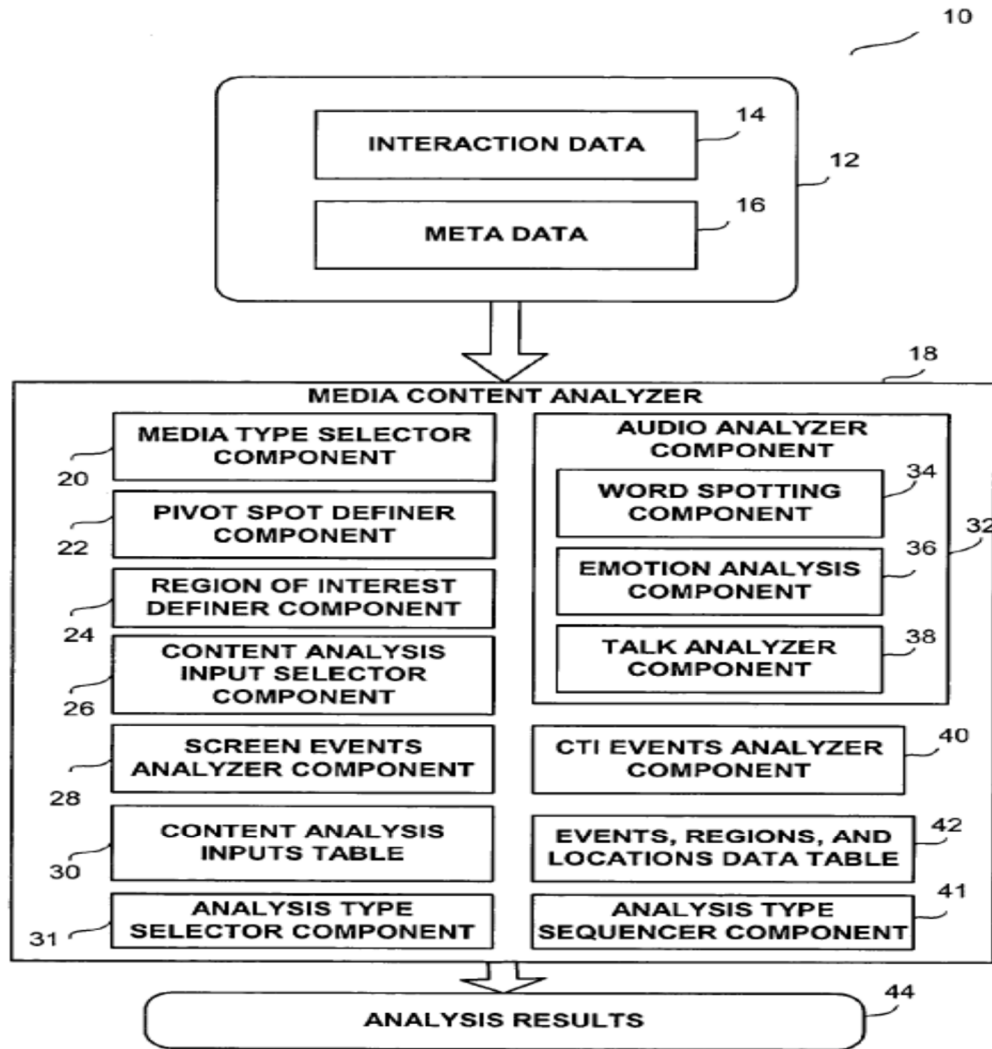


FIG. 1

Figure 1 of the Bachar illustrates the apparatus of the proposed embodiment.

Bachar discloses that the media content being analyzed could be a telephone conversation and that the apparatus is capable of performing a number of different types of analyses on the telephone conversation. Ex. 1002 ¶¶ 17, 19. In one example, an audio analyzer component is capable of performing word spotting, emotion analysis, and talk analysis, and a Computer Telephony Interface (CTI) analysis component is capable of analyzing CTI events. *Id.* Bachar discloses that “[w]henever possible,” less resource expensive tests are used to optimize selected regions of the

conversation so that resource expensive tests can be used “on the more ‘interesting’ segments selected for analysis.” *Id.* ¶ 16.

Bachar describes one example where a “hold event” is identified in the telephone conversation, and the apparatus creates a pivot spot based on the hold event, and generates a Region of Interest period around the pivot spot. Ex. 1002 ¶ 20. This aspect is illustrated in Figure 2, reproduced below (*id.* ¶ 13):

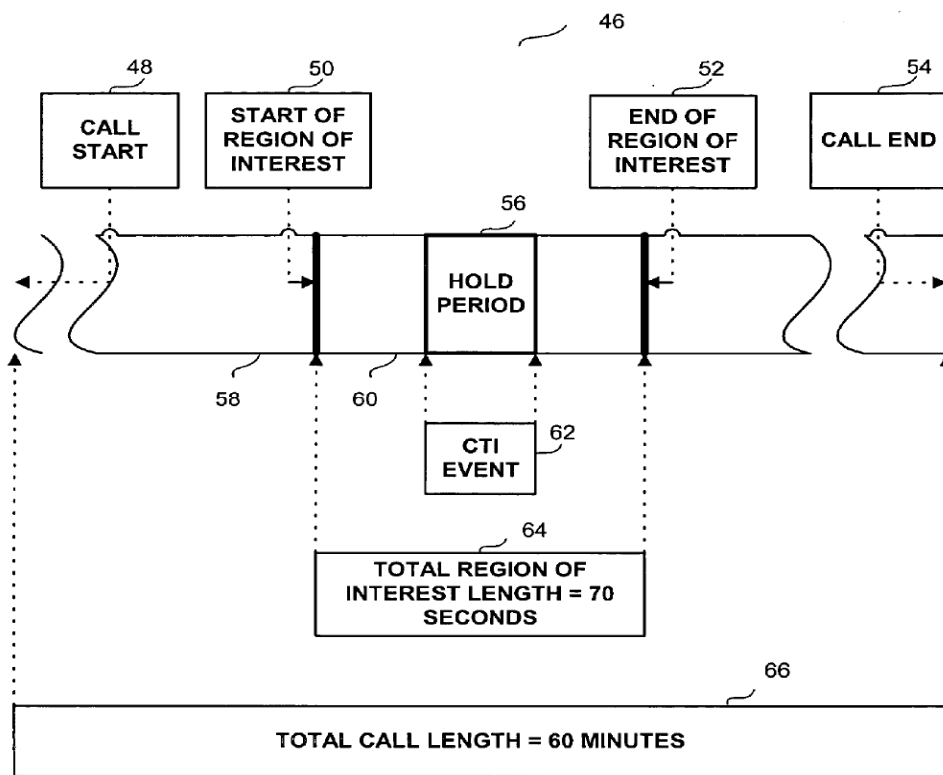


Figure 2 of Bachar illustrates an exemplary region of interest in an interaction during a telephone conversation.

The Region of Interest is defined by start point 50 and end point 52, where The Region of Interest can then be further analyzed using more resource-intensive processing. Ex. 1002 ¶¶ 20–21. Although the above example relates to identifying a CTI event, such as a “hold” event, as the

pivot spot, Bachar discloses that pivot spots can also be identified using audio analysis, such as emotion analysis or word spotting analysis. *Id.* ¶ 23.

Bachar discloses that the apparatus can be used by an organization to identify problems in interactions, such as identifying interactions that have high emotional levels on the customer side, so that the business can create improved processes and coach agents to improve upon specific problems that occur in their interactions. Ex. 1002 ¶¶ 36–37.

2. *APA (portions of Ex. 1001)*

Petitioner cites to certain discussions provided in the Specification of the '475 Patent for what Petitioner contends was admitted to be prior art therein. *See* Pet. 37, 39, 41, 46–47, 51, 54.

According to Petitioner, the '475 Patent “admits it was known at the time the patent was filed” that processing audio using a transcription engine was more time and processing intensive than processing audio with a word spotting engine. Pet. 37 (citing Ex. 1001, 1:52–2:2); *see id.* at 39 (citing same). Petitioner also asserts that certain analysis techniques are admitted prior art, including those to determine “hidden link analysis between segments,” “what are the main contributions to call volume,” and whether any “patterns” are present in the audio. *Id.* at 41, 46–47 (citing Ex. 1001, 1:28–47). Petitioner also asserts that the '475 Patent admits that “phonetic search engines,” which were used to spot “word parts or syllables in audio interactions,” were known at the time the '475 Patent was filed. *Id.* at 51 (citing Ex. 1001, 1:62–2:2). Lastly, according to Petitioner, the '475 Patent admits that it was known to extract information from audio segments received from a variety of sources, such as a “TV broadcast,” “transmitted radio,” an “audio segment[] downloaded from the internet,” an “audio file[],” an “audio ... stream[],” “the audio part of [a] video file[],” or “the

audio part of [a] video stream[.]” Pet. 54 (citing Ex. 1001, 1:16–28) (alterations in original).

We note that Patent Owner has asserted that “[n]one of [APA] admits the arrangement of these tools was known, or their use to reveal aspects related to an organization in the manner claimed.” PO Resp. 39. Patent Owner also argues that “[t]he Board should decline to consider this information as part of the asserted grounds of unpatentability because it is not ‘prior art’ that may be applied in this proceeding.” *Id.* (citing Treatment of Statements of the Applicant in the Challenged Patent in *inter partes* Reviews under § 311, USPTO Memorandum, August 18, 2020; “Memo.”). We determine that no particular aspect of the challenged claims is considered *solely* in view of APA; as discussed below, APA is considered in the alternative to the disclosures of the other cited references. Patent Owner acknowledges that the cited portions are “nothing more than disclosed background information” (*id.*), so that Patent Owner is not contesting status of the APA, only its application in the grounds of unpatentability. We take APA as statements that may be used as evidence of the general knowledge possessed by someone of ordinary skill in the art and apply them accordingly, in the context of the grounds of unpatentability below. Memo, 4.

3. *Freedman (Ex. 1003)*

Freedman is directed to a method and apparatus for capturing and analyzing customer interactions having a rule-based analysis engine. Ex. 1003, Abstract. Freedman discloses that the rule-based analysis engine is a software device operative to perform rule checks on various content data items, where the rules are predetermined by the user or are adaptive in accordance with the system’s performance and demands. *Id.* ¶ 39. The

results of the analysis performed by the rule-based engine are used to alert to the management or supervisors. *Id.*

In different examples, call centers directed to specific industries, such as insurance or stock trading, can provide analysis based on recognized words in those industries or of interest to supervisors, so that the system can alert management “when an indication of irregularity or bad practice is identified.” Ex. 1003 ¶ 40. The system can also recognize behavioral patterns, speaker identification and verification, call flow analysis, excitement or emotion analysis, and association of events. *Id.* ¶¶ 41, 57. Additionally, the system can analyze specific parts of a call based on information from CTI events or preprocessing functions and provides software that can reduce noise in speech. *Id.* ¶¶ 47, 49. Freedman also provides that rules can be defined to identify multiple occurrences of events in a certain time frame, sequenced or concurrent occurrences of events, logical relations between events, or information from a variety of sources, such as “spotted words, simultaneous talking, silence periods, excitement type, [and] excitement level.” *Id.* ¶ 59.

4. *Analysis*

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art;

(3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Patent Owner argues that Dr. Stern’s declaration is nothing more than a duplication of the Petition with the occasional insertion of “in my opinion,” and should be given “little to no weight.” PO Resp. 40–41. Patent Owner also argues that Dr. Stern’s testimony on redirect during his deposition, given the circumstances, should be given no weight because it is untrustworthy and unreliable. *Id.* at 41–42. Petitioner disputes Patent Owner’s contentions, and argues that Dr. Stern’s testimony, in his declaration and in his deposition, should be judged by their substance. Pet. Reply 20–21. Below, where applicable, we consider Dr. Stern’s testimony in conjunction with the prior art references and the alleged admitted art discussed in the Specification of the ’475 Patent, and apply the weight that we consider appropriate. We decline to give his testimony “no weight,” as argued by Patent Owner, but we do consider the context of his testimony.

a) Independent claim 1

Petitioner asserts that the combination of Bachar, APA, and Freedman teaches all the limitations of claim 1, and that one of ordinary skill in the art would have been motivated to combine the prior art references. *See* Pet. 28–49.

i. Limitation 1[a]

With respect to the preamble of claim 1, Petitioner asserts that Bachar discloses the preamble. Pet. 28–29. Petitioner cites to Bachar as disclosing that an organization may use its method to “clarify the reason for the

⁷ No objective evidence of nonobviousness is presented in the Patent Owner Response or Sur-Reply. *See generally* PO Resp.; PO Sur-Reply.

agent[]” putting a customer on hold, to find interactions with indications of churn, such as high emotional levels of the customer, churn-specific words, or low-satisfaction indications, to identify when an agent ignores rules about placing a customer on hold, or to gauge the effectiveness of offering a promotion to an upset customer. *Id.* at 28 (citing Ex. 1002 ¶¶ 30, 37, 39–40) (alteration in original). Petitioner also asserts that Bachar discloses that once these issues are identified, the business can create improved processes and coach agents to improve customer satisfaction and decrease customer attrition. *Id.* (citing Ex. 1002 ¶ 37).

Patent Owner does not contest Petitioner’s assertions with respect to limitation 1[a]. *See generally* PO Resp.; PO Sur-Reply. We are persuaded that Petitioner has shown by a preponderance of the evidence that the combination of Bachar discloses limitation 1[a] of independent claim 1.

ii. Limitation 1[b]

With respect to the step of performing an initial processing on the audio signal, Petitioner asserts that Bachar discloses this limitation. Pet. 29. Petitioner cites to Bachar as disclosing that an event can be identified in the call, creating a pivot spot occurring at a specific time, and that pivot point can be determined based on CTI events, screen events or audio events. *Id.* at 29–31 (citing Ex. 1002 ¶¶ 9, 20, 23, 28, Figs. 2, 3; Ex. 1005 ¶ 74).

Patent Owner does not contest Petitioner’s assertions with respect to limitation 1[b]. *See generally* PO Resp.; PO Sur-Reply. We are persuaded that Petitioner has shown by a preponderance of the evidence that the combination of Bachar discloses limitation 1[b] of independent claim 1.

iii. Limitation 1[c]

With respect to the step of performing additional processing on a part of the audio signal, Petitioner asserts that Bachar teaches this limitation,

alone or in combination with APA and/or Freedman. Pet. 32. Petitioner cites to Bachar as disclosing that, once an event has been identified and a pivot spot has been placed at the time of the event, a Region of Interest is established around the pivot spot, where predetermined static periods or dynamically calculated time periods before and after the location of the pivot spot make up that Region of Interest. *Id.* at 32–33 (citing Ex. 1002 ¶¶ 20, 24–25, 31, 33, Fig. 2; Ex. 1005 ¶ 77). Petitioner further cites to Bachar as disclosing that after the Region of Interest is established, an additional, more processor-intensive type of processing, such as word spotting, is performed on the audio in the Region of Interest. *Id.* at 34–35 (citing Ex. 1002 ¶¶ 19, 21, 23, 25, 30, 34, 37–40, Fig. 3; Ex. 1005 ¶ 77). In addition, Petitioner cites to Bachar’s use of emotion analysis to establish the Region of Interest and the subsequent use of word spotting, asserting that the processing using emotion analysis corresponds to the “initial processing” recited in limitation 1[b] and the processing using word spotting corresponds to the “additional processing” recited in limitation 1[c]. *Id.* at 36–37 (citing Ex. 1002 ¶¶ 21, 23–25, 29, 38; Ex. 1005 ¶ 81).

Additionally, Petitioner asserts that APA shows that it was known at the time the ’475 Patent was filed that processing audio using a transcription engine was more processing intensive than processing audio with a word spotting engine and that Freedman confirms that transcription engines were well-known at the time the ’475 Patent was filed. Pet. 37–38 (citing Ex. 1001, 1:52–2:2; Ex. 1003 ¶ 51). Petitioner asserts that it would have been obvious to an ordinarily skilled artisan to modify the system of Bachar to first process audio using word spotting to identify a pivot spot in audio, and then perform transcription in a Region of Interest around that pivot spot, because this would allow for the extraction of additional meaningful

information and would have led to a predictable result. *Id.* at 38 (citing Ex. 1002 ¶ 8; Ex. 1005 ¶ 84).

Patent Owner argues that Petitioner asserts a series of processes in Bachar that do not fit the claims. PO Resp. 43. Patent Owner argues that properly construed, “the additional processing of claim 1 requires a process *other than* word spotting, phonetic decoding, emotion detection, call flow analysis, or talk analysis.” *Id.* at 44. We do not agree. As Petitioner points out, this argument rests on Patent Owner’s claim construction, which we have not adopted. Pet. Reply 21. *See* Section II.B.1.a.

Patent Owner also argues that Bachar does not disclose applying transcription, which is described in the ’475 Patent or Freedman, within its Region of Interest, and the motivation supplied by Petitioner is insufficient. PO Resp. 44–45. Patent Owner also argues that a person of ordinary skill in the art would not have found it obvious to apply a blanket speech-to-text transcription process to simply generate more data because doing so would run counter to Bachar’s primary goal of overall efficiency. *Id.* at 46 (citing Ex. 2004 ¶¶ 110–112; Ex. 2002, 110:19–111:1). We do not agree.

Bachar makes clear that certain types of analysis are substantially less demanding on computer resources than certain other types, wherein less demanding analysis steps precede the more demanding analysis steps. Ex. 1002 ¶ 16. Bachar also discloses that “[w]henever possible,” less resource expensive tests are used to optimize selected regions of the conversation so that resource expensive tests can be used “on the more ‘interesting’ segments selected for analysis.” *Id.* As such, Bachar implies that certain areas, like the Region of Interest, could be the subject of the more resource expensive tests. *See id.* ¶ 34. Thus, Bachar alone discloses this limitation of independent claim 1, through its “last analysis” step, or through its emotion

analysis process, discussed above. Ex. 1002 ¶¶ 19, 21, 23–25, 29, 30, 34, 37–40, Fig. 3. Additionally, APA and Freedman both detail different types of analyses that have different rates of consumption of time and computing resources. See Ex. 1001, 1:56–2:2; Ex. 1003 ¶¶ 47, 49. Given the overall disclosure in Bachar, we agree with Petitioner that one of ordinary skill in the art would have been motivated to incorporate the transcription process described in the APA and/or the transcription process disclosed in Freedman into Bachar’s system. See Pet. 36–40.

With respect to Patent Owner’s argument that applying a blanket speech-to-text transcription process in Bachar would run counter to its goal of overall efficiency, we are not persuaded that Petitioner is suggesting a “blanket” application of speech-to-text transcription, but a more targeted process. See Pet. 39–40. Although we agree that merely the generation of more data should not be seen as a general motivation, but a targeted transcription would allow for application of additional analyses.

We are persuaded that Petitioner has shown by a preponderance of the evidence that Bachar alone discloses limitation 1[c], and that the combination of Bachar and/or APA and/or Freedman teaches limitation 1[c] of independent claim 1.

iv. Limitation 1[d]

With respect to the step of analyzing the at least one event and the output of the additional processing, Petitioner asserts that Bachar teaches this limitation, alone or in combination with Freedman. Pet. 40. Petitioner cites to Bachar as disclosing that businesses had long considered their interactions with customers to be a major source of information about, and insight into, their customers and business operations, and as defining the “concept of [a] Region of Interest” was “as specific segments of interaction

media . . . that can be analyzed in order to extract meaningful and useful interaction data to an organization.” *Id.* at 40 (citing Ex. 1002 ¶¶ 7, 16; Ex. 1005 ¶ 88) (alterations in original). Petitioner acknowledges that “[w]hile *Bachar* does not identify the precise type of analysis used to make this determination, it would have been obvious to a [person of ordinary skill in the art (“POSITA”)] to perform some additional analysis, such as one of the analysis techniques that the ’475 patent admits as prior art (*see* EX1001, 1:28–47), in order to accomplish these objectives.” *Id.* at 41.

As such, Petitioner also discusses that Freedman allows a user to set rules for analyzing the output of the multiple processing steps, and for the system to then use those rules to analyze the output of the multiple processing steps to provide information about an organization. Pet. 41–43 (citing Ex. 1003, Abstract, ¶¶ 14, 36, 37, 39–41, 47, 57–59). Petitioner asserts that one of ordinary skill in the art would have been motivated to incorporate the rules of Freedman, to analyze information output from multiple processing steps, into the analysis system of Bachar “to better reveal information that provides insight to an organization,” and that making such a modification “would have been well within the abilities of a POSITA and could be easily accomplished with a high chance of success.” *Id.* at 43–44 (citing Ex. 1005 ¶¶ 93, 94).

Patent Owner disputes that Bachar, APA, and/or Freedman teach or suggest this limitation of claim 1. PO Resp. 49–60. Patent Owner argues that none of the cited references discloses “analyzing the at least one event” and “the output of the additional processing.” *Id.* at 50, 53–54; PO Sur-Reply 2–5. We do not agree. As Petitioner points out, Bachar explicitly discloses various scenarios where an organization may process an audio interaction to identify events, and further process the audio interaction

around the events to identify or analyze certain problems associated with the organization. Pet. 43 (citing Ex. 1002 ¶¶ 36–40). We agree with Petitioner’s assertions that it would have been obvious to use the multiple sets of rules from Freedman for the combined system to analyze the output of the multiple processing steps to provide information about an organization. *Id.* We are also persuaded that, given such a structure, the at least one event and output of additional processing would have been analyzed to reveal at least one aspect related to the organization.

Patent Owner also argues that the Petition fails to demonstrate that the asserted prior art discloses or renders obvious the claimed “analyzing,” with Bachar, at most, identifying a pivot spot and applying a “last analysis” within a region of interest around the pivot spot. PO Resp. 52–53; PO Sur-Reply 5. Patent Owner also argues that the Petition does not explain why it would have been obvious to modify Bachar to perform the analyzing required by the claims. PO Resp. 54; PO Sur-Reply 5. Patent Owner also argues that Freedman and APA do not cure the deficiencies of Bachar and their teachings diverge from each other and from claim 1. PO Resp. 54–56; PO Sur-Reply 6–7. We disagree. Petitioner has provided a basis to combine elements of Freedman into the system of Bachar to provide the types of analysis to provide information about an organization. *See* Pet. 40–44. We concur with Petitioner that “[m]odifying the system of *Bachar* to use rules for analyzing information output from multiple processing steps to reveal information about an organization would have been well within the abilities of a POSITA and could be easily accomplished with a high chance of success.” *Id.* at 44.

As such, we are persuaded that Petitioner has shown by a preponderance of the evidence that the combination of Bachar and Freedman teaches limitation 1[d] of independent claim 1.

v. *Limitation 1[e]*

Limitation 1[e] recites, in part, that the analysis comprises “at least one of the group consisting of: link analysis, root cause analysis, finding relations, finding connections, finding an at least one hidden pattern, and clustering of at least two audio segments based on the initial processing.” Petitioner asserts that Bachar, alone or in combination with APA and/or Freedman, teaches this limitation. Pet. 45.

Petitioner cites to Bachar as disclosing that the apparatus therein can analyze audio in a Region of Interest to clarify the reasons the agent put a customer on hold, or reasons for customer attrition. Pet. 45 (citing Ex. 1002 ¶¶ 21, 38). Based on Bachar’s disclosure, Petitioner asserts that Bachar discloses analyzing audio for events and reasons for events, thereby finding both relationships between the events and as well as reasons for an event. *Id.* Petitioner asserts that in identifying events and information in audio around events, the system of Bachar also performs link analysis and root cause analysis, and also finds “relations” or “connections” between the information and the events. *Id.* (citing Ex. 1005 ¶ 97). In addition, Petitioner asserts that the system of Bachar can perform analysis to identify the reason agents put customers on hold, and can also “identif[y] specific patterns from the ordinary speech patterns” in an interaction. *Id.* at 46 (citing Ex. 1002 ¶¶ 19, 30, 39). Petitioner also asserts that Bachar discloses that its systems locates associated Regions of Interest and can infer and act upon the association. *Id.* (citing Ex. 1002 ¶ 19). Based on those findings, Petitioner asserts that Bachar discloses identifying a hidden pattern and acts

to cluster audio segments. *Id.* (citing Ex. 1005 ¶ 98). We agree with Petitioner’s analysis that Bachar alone discloses link analysis, root cause analysis, finding relations, finding connections, finding an at least one hidden pattern, and clustering of at least two audio segments and thus discloses limitation 1[e].

Additionally, Petitioner asserts that the ’475 Patent acknowledges it was known (i) to analyze structured information related to audio segments to analyze issues such as “hidden link analysis between segments” and to determine “what are the main contributions to call volume,” (ii) to identify “hidden link[s]” between audio segments, and (iii) to detect “patterns” in audio. Pet. 46–47 (citing Ex. 1001, 1:34–39). Based on these findings, Petitioner determines that the APA discloses it was known to find “relations,” “connections,” and “hidden patterns” between audio segments, as well as “clustering of at least two audio segments” into categories. *Id.* at 47 (citing Ex. 1005 ¶ 99).

As well, Petitioner asserts that Freedman discloses analyzing audio to identify, for example, where “negative excitement on the agent side [is] followed by a negative excitement on the customer side” in order to detect “unprofessional behavior of an agent,” asserting that Freedman discloses link analysis and root cause analysis. Pet. 47 (citing Ex. 1003 ¶ 57). Additionally, according to Petitioner, Freedman discloses detecting relations or connections between audio segments, thus identifying hidden patterns, as well as analyzing audio to identify events, and then associating the events, or identifying “multiple occurrences of events in a certain time frame,” thus disclosing clustering of at least two audio segments. *Id.* at 47–48 (citing Ex. 1003 ¶¶ 37, 41, 57, 59).

Petitioner asserts that link analysis, root cause analysis, finding relations, finding connections, finding an at least one hidden pattern, and clustering of at least two audio segments based on the initial processing were well-known at the time the '475 Patent was filed as illustrated by APA and Freedman. Pet. 48. Petitioner further asserts that one of ordinary skill in the art would have been motivated to modify the system of Bachar to perform any of listed types of analyses to better uncover information and insight about customers and business operations. *Id.* Petitioner further asserts that such modifications would have been well within the abilities of an ordinarily skilled artisan and could be easily accomplished with a high chance of success. *Id.* at 48–49 (citing Ex. 1005 ¶ 101). We agree with Petitioner's analysis regarding the disclosures of APA and Freedman, and we also agree with Petitioner's analysis that one of ordinary skill in the art would have been motivated to combine aspects of APA and Freedman with the system of Bachar, as Petitioner has asserted to apply all of the analysis methods listed in limitation 1[e].

Patent Owner does not contest Petitioner's assertions with respect to limitation 1[e], other than espousing different or additional claim constructions for the terms recited in this limitation. *See* PO Resp. 57–60. As discussed in Sections II.B.1.b–g, we have not adopted Patent Owner's constructions.

Given the Markush group construction in limitation 1[e], we determine that Petitioner has demonstrated at least one of the analysis processes listed therein and this is sufficient to show the obviousness of that limitation. *See Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 582 F.3d 1288, 1297–98 (Fed. Cir. 2009). Additionally, as discussed above, Petitioner has demonstrated that all of the elements of the Markush group have been

disclosed by Bachar and/or APA and/or Freedman. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that Bachar alone discloses limitation 1[e], and that the combination of Bachar and/or APA and/or Freedman teaches limitation 1[e] of independent claim 1.

iii. Summary

Accordingly, we determine that Petitioner has shown by a preponderance of evidence that independent claim 1 of the '475 Patent would have been obvious over the combination of Bachar, APA, and Freedman.

b) Dependent claim 2

With respect to dependent claim 2, that claim recites a preprocessing step for enhancing the audio signal. Petitioner asserts that Bachar, alone or in combination with Freedman, teaches this limitation. Pet. 49–50. Petitioner asserts that Bachar discloses that regions of interest can be optimized to accomplish a reduction in size thereof, with one example of speaker separation being performed, that would better enhance the performance of the apparatus and to preserve system resources. *Id.* at 49 (citing Ex. 1002 ¶ 31; Ex. 1005 ¶ 104). Petitioner also asserts that Freedman discloses use of a “pre-processing and content extraction stage” that includes an “audio classification module” for “speaker segmentation” and a “noise reduction software module” for “noise reduction.” *Id.* (citing Ex. 1003 ¶¶ 45–51, 55, Fig. 4; Ex. 1005 ¶ 105). Petitioner asserts that one of ordinary skill in the art would have been motivated to modify the system of Bachar to segment audio based on speaker and/or reduce audio noise before analyzing the audio, as taught by Freedman, to reduce resources required to analyze the audio. *Id.* at 50 (citing Ex. 1005 ¶ 106).

Patent Owner does not present arguments contesting Petitioner's additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and Freedman to render claim 2 obvious for the reasons provided by Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 2 of the '475 Patent would have been obvious over the combination of Bachar and Freedman.

c) Dependent claim 8

Dependent claim 8 provides specific processes from which the initial processing comprises in the form of a Markush group. Specifically, claim 8 depends from claim 1 and adds “wherein the initial processing comprises activating at least one of the group consisting of: a word spotting process, a phonetic decoding process, an emotion detection process, and a call flow analysis process.” Petitioner asserts that Bachar discloses at least one of the recited processes. Pet. 50. Petitioner asserts that Bachar discloses processing an audio signal to identify an event, and then creating a pivot spot at the location in time at which the event occurred, such that it discloses that the event can be identified using word spotting, emotion detection, or detection of Computer Telephony Interface (CTI) events (i.e., a call flow analysis). *Id.* at 51 (citing Ex. 1002 ¶¶ 19, 23). Petitioner asserts that one of ordinary skill in the art would have motivated to modify the system of Bachar to include a phonetic search engine as an analysis option for initially processing an audio signal to identify a pivot spot to improve extraction of information meaningful to an organization. *Id.* at 51–52 (citing Ex. 1005 ¶ 113).

Patent Owner does not present arguments contesting Petitioner's additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that Bachar discloses or suggests all of the processes, i.e., a word spotting process, a phonetic decoding process, an emotion detection process, and a call flow analysis process, as recited in claim 8, and that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and APA to render claim 8 obvious for the reasons provided by Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 8 of the '475 Patent would have been obvious over the combination of Bachar, APA, and Freedman.

d) Dependent claim 9

Dependent claim 9 provides that the additional processing comprises activating a speech-to-text process. Petitioner asserts that Bachar discloses that the region of interest in the audio signal can be processed using word spotting, including the use of transcription to translate speech elements within the audio to text. Pet. 52–53 (citing Ex. 1002, ¶¶ 19, 21, 24, 25, 30, 33, 38). Petitioner asserts that one of ordinary skill in the art would have been motivated to modify the system of Bachar to include transcription as a type of processing that could be conducted on a region of interest in the audio. *Id.* at 53 (citing Ex. 1005 ¶ 117).

Patent Owner does not present arguments contesting Petitioner's additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that Bachar discloses the subject matter of claim 9, and that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and/or APA and/or Freedman to render claim 9 obvious for the reasons provided by Petitioner. Accordingly, we

determine that Petitioner has shown by a preponderance of evidence that claim 9 of the '475 Patent would have been obvious over the combination of Bachar, APA, and Freedman.

e) Dependent claim 10

Dependent claim 10 recites a Markush group of sources for the audio signal to be processed. Petitioner asserts that Bachar alone or in combination with the APA discloses at least one of the recited sources. Pet. 53. Petitioner asserts that Bachar discloses that the processed media could be an “audio recording of a telephone conversation” and a Voice Over Internet Protocol (VoIP) interaction. *Id.* at 53–54 (citing Ex. 1002 ¶¶ 15, 17, 20, 27, 39; Ex. 1005 ¶ 121). Petitioner also asserts that (i) the '475 Patent admits that it was known to extract information from audio segments receives from a variety of sources, such as a TV broadcast, a radio broadcast, and other sources recited in claim 10, (ii) one of ordinary skill in the art would have motivated to have substituted any of these audio sources for the telephone audio source of Bachar, and (iii) any such substitution would have led to predictable results at the time the '475 Patent was filed. *Id.* at 54 (citing Ex. 1001, 1:16–28; Ex. 1005 ¶ 123).

Patent Owner does not present arguments contesting Petitioner's additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that Bachar alone discloses the subject matter of claim 10 and that Bachar in combination with APA teaches the subject matter of claim 10, and that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and APA to render claim 10 obvious for the reasons provided by Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 10 of

the '475 Patent would have been obvious over the combination of Bachar, APA, and Freedman.

D. Alleged Obviousness of Claims 3–7 Over Bachar, APA, Freedman, and Conway

Petitioner contends that claims 3–7⁸ would have been obvious over Bachar, APA, Freedman, and Conway. Pet. 62–69. To support its contentions, Petitioner provides explanations as to how the combination of Bachar, APA, Freedman, and Conway teach each claim limitation and that there is a rationale to combine the references. *Id.* Patent Owner argues that the combination does not render obvious the “presentation step” of claim 3. PO Resp. 61–62.

We begin our discussion with a brief summary of Conway, and then address the evidence and arguments presented.

1. Conway (Ex. 1004)

Conway is directed to a method of analyzing a telephonic communication between a customer and a contact center, where the telephonic communication is separated and mined through application of a predetermined linguistic-based psychological behavioral model, and behavioral assessment data are generated which correspond to the analyzed voice data. Ex. 1004, Abstract. Conway discloses that a monitoring system can perform a stress analysis to determine a stress parameter, from which it can be determined whether the customer experience of the caller was satisfactory or unsatisfactory. *Id.* ¶ 7. Conway discloses that its system has a unique graphical user interface (“GUI”) that enables the user to navigate

⁸ We acknowledge that claims 13 and 15–17 were also asserted under this ground of unpatentability but have been omitted from consideration per Section II.B.3 *supra*.

through the system to obtain reports and information regarding caller interaction events stored in memory. *Id.* ¶ 121. The interface enables the user to search for calls based on user-defined criteria, where results from a search may be visually depicted as a list of calls, where a time-based representation of the characteristics of the call may be presented. *Id.*

¶¶ 130–132, Fig. 17. Visual call statistics, including call duration, average duration for call type, caller talk time, number of holds over predetermined time periods, number of silences, and a customer satisfaction score, can also be displayed. *Id.* ¶ 134.

2. *Analysis*

In addition to the aspects of Conway discussed above, Petitioner asserts that a person of ordinary skill in the art would have found it obvious to incorporate those aspects of Conway into the combination of Bachar, APA, and Freedman. Pet. 62–69.

a) *Dependent claim 3*

Claim 3 depends from claim 1 and adds “further comprising a presentation step for presenting a presentation of the at least one aspect related to the organization.” Petitioner asserts that one of ordinary skill in the art would have been motivated to combine the disclosures of Bachar and Conway to suggest the limitation added by claim 3. Pet. 63. More specifically, Petitioner asserts that one of ordinary skill in the art would have modified the apparatus of Bachar to display customer information about an organization in a GUI, such as a customer satisfaction score revealed in analyzing an audio signal, as taught by Conway, in order to provide feedback to an organization that could be useful in improving customer relations. *Id.* (citing Ex. 1004 ¶¶ 6, 136–137, 141, 138–142; Ex. 1005 ¶ 151).

Patent Owner argues that Bachar merely discloses displaying events but does not disclose or suggest what those reports and queries include. PO Resp. 61 (citing Ex. 2004 ¶¶ 136–137, 141). Patent Owner also argues that Conway is similarly deficient and Petitioner does not explain how a “customer satisfaction score” has any relevance to the claims. *Id.* Patent Owner continues that neither reference teaches or suggests that its score is a function of an analysis of an event and the additional words around the event, let alone any comparison between the two involving a specific analysis technique. *Id.* at 61–62 (citing Ex. 2004 ¶¶ 138–142).

We do not agree with Patent Owner’s arguments. As discussed above in Section II.B.2, claim 3 recites, in part, “a presentation step for presenting a presentation of the at least one aspect related to the organization.” We continue to determine that claim 3 requires the presentation of the aspect, which is a result of the analysis, but not presentation of the analysis itself, per se. As discussed with respect to independent claim 1, we are persuaded that Bachar and/or the combination of Bachar, APA, and Freedman teaches the determination of the at least one aspect related to the organization. The addition of Conway provides additional options for how that aspect may be presented, and we are persuaded that Petitioner has demonstrated that one of ordinary skill in the art would have modified the apparatus of Bachar as taught by Conway. Pet. 62-64 (citing Ex. 1004 ¶¶ 6–8, 112–115, 121, 130–134, 128–140).

Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 3 of the ’475 Patent would have been obvious over the combination of Bachar, APA, Freedman, and Conway.

b) Dependent claim 4

Claim 4 recites “[t]he method of claim 3 wherein the presentation is a graphic presentation.” Petitioner asserts that one of ordinary skill in the art would have been motivated to combine the disclosures of Bachar and Conway to suggest the limitation added by claim 4. Pet. 64. Petitioner asserts that one of ordinary skill in the art would have modified the apparatus of Bachar to display information revealed in analyzing an audio signal, such as information indicative of customer satisfaction or dissatisfaction, in a GUI, as taught by Conway. *Id.* (citing Ex. 1004 ¶¶ 6, 136–137, 141, 138–142; Ex. 1005 ¶ 155). Patent Owner does not present arguments contesting Petitioner’s additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and Conway to render claim 4 obvious for the reasons provided by Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 4 of the ’475 Patent would have been obvious over the combination of Bachar, APA, Freedman, and Conway.

c) Dependent claim 5

Claim 5 recites “[t]he method of claim 3 wherein the at least one event is marked on the presentation wherein the marking is indicative to a characteristic of the event.” Petitioner asserts that one of ordinary skill in the art would have been motivated to combine the disclosures of Bachar and Conway to suggest the limitation added by claim 5. Pet. 64–67. Petitioner asserts that one of ordinary skill in the art would have modified the apparatus of Bachar to display information revealed in analyzing an audio signal in a GUI, as taught by Conway, and that it would have been obvious to indicate the events within the audio signal in the GUI by displaying a

progress bar with the events marked with colored points and colored line segments, and with a key identifying which colors correspond to which types of events, as taught by Conway. *Id.* at 65–67 (citing Ex. 1004 ¶¶ 6, 136–137, 141, 138–142; Ex. 1005 ¶ 160). Patent Owner does not present arguments contesting Petitioner’s additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and Conway to render claim 5 obvious for the reasons provided by Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 5 of the ’475 Patent would have been obvious over the combination of Bachar, APA, Freedman, and Conway.

d) Dependent claim 6

Claim 6 recites “[t]he method of claim 3 wherein a connection between the at least one event and the at least one aspect is marked.” Petitioner asserts that one of ordinary skill in the art would have been motivated to combine the disclosures of Bachar and Conway to suggest the limitation added by claim 6. Pet. 67–68. Petitioner asserts that one of ordinary skill in the art would have modified the apparatus of Bachar to display information revealed in analyzing an audio signal in a GUI and to indicate the events within the audio signal in the GUI by displaying a progress bar with the events marked with colored points and colored line segments, as taught by Conway. *Id.* at 68 (citing Ex. 1004 ¶¶ 6, 136–137, 141, 138–142; Ex. 1005 ¶ 164). Patent Owner does not present arguments contesting Petitioner’s additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and Conway to render claim 6 obvious for the reasons provided by

Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 6 of the '475 Patent would have been obvious over the combination of Bachar, APA, Freedman, and Conway.

e) Dependent claim 7

Claim 7 recites “[t]he method of claim 6 wherein the connection is marked in a manner indicative to a characteristic of the connection.” Petitioner asserts that one of ordinary skill in the art would have been motivated to combine the disclosures of Bachar and Conway to suggest the limitation added by claim 7. Pet. 68–69. Petitioner asserts that one of ordinary skill in the art would have modified the apparatus of Bachar to display information revealed in analyzing an audio signal in a GUI and to indicate the events within the audio signal in the GUI by displaying a progress bar with the events marked with colored points and colored line segments and with a key identifying which colors correspond to which types of events, as taught by Conway. *Id.* at 69 (citing Ex. 1005 ¶ 168). Patent Owner does not present arguments contesting Petitioner’s additional allegations for this claim. *See generally* PO Resp.; PO Sur-Reply. We agree with Petitioner that one of ordinary skill in the art would have been motivated to combine the teachings of Bachar and Conway to render claim 7 obvious for the reasons provided by Petitioner. Accordingly, we determine that Petitioner has shown by a preponderance of evidence that claim 7 of the '475 Patent would have been obvious over the combination of Bachar, APA, Freedman, and Conway.

3. Summary

We determine that Petitioner has shown by a preponderance of evidence that claims 3–7 would have been obvious over Bachar, APA, Freedman, and Conway.

IV. CONCLUSION⁹

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 2, 8–12, 14	103	Bachar, APA, Freedman	1, 2, 8–10	11, 12, 14
3–7, 13, 15–17	103	Bachar, APA, Freedman, Conway	3–7	13, 15–17
Overall Outcome			1–10	11–17

V. ORDER

For the reasons given, it is:

ORDERED that Petitioner has established based on a preponderance of evidence that claims 1–10 of U.S. Patent 7,599,475 B2 are unpatentable as obvious under 35 U.S.C. § 103;

FURTHER ORDERED that Petitioner has failed to establish based on a preponderance of evidence that claims 11–17 of U.S. Patent 7,599,475 B2 are unpatentable as obvious under 35 U.S.C. § 103; and

⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

FURTHER ORDERED because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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