

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUANTUM METRIC, INC., DECIBEL INSIGHT, LTD.,
and DECIBEL INSIGHT, INC.,
Petitioner,

v.

CONTENT SQUARE ISRAEL LTD. (f/k/a CLICKTALE LTD.),
Patent Owner.

IPR2021-00363
Patent 9,508,081 B2

Before KARL D. EASTHOM, STEVEN M. AMUNDSON, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. BACKGROUND

A. Background and Summary

Quantum Metric, Inc., Decibel Insight, Ltd., and Decibel Insight, Inc. (“Petitioner”) filed a Petition for *inter partes* review (“IPR”) of claims 1–22 of U.S. Patent No. 9,508,081 (Ex. 1001, “the ’081 patent”). Paper 3 (“Pet.”). Patent Owner, Content Square Israel Ltd., f/k/a Clicktale Ltd., (“Patent Owner”), filed a Preliminary Response. Paper 11 (“Prelim. Resp.”). Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). An *inter partes* review may not be instituted on fewer than all claims challenged in the Petition. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

Having considered the Petition and the Preliminary Response, we determined that the information presented in the Petition established that there is a reasonable likelihood that Petitioner would prevail in challenging at least one of claims 1–22 of the ’081 patent as unpatentable under 35 U.S.C. § 103(a). Pursuant to § 314, we instituted an *inter partes* review as to claims 1–22 of the ’081 patent on all grounds raised in the Petition. Paper 23 (“Dec. on Inst.”).

During the course of trial, Patent Owner filed a Response to the Petition. Paper 38 (“Resp.”). Petitioner filed a Reply to the Response. Paper 45 (“Reply”). Patent Owner filed a Sur-reply to Petitioner’s Reply.

Paper 48 (“Sur-reply”). An oral argument was held on April 20, 2022, and a transcript of the oral argument is included in the record. Paper 52 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–22 of the ’081 patent. For the reasons we identify below, we determine that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable under § 103(a).

B. Real Parties in Interest

Petitioner identifies itself and Medallia Inc. as real parties-in-interest. Pet. 84; Paper 7, 2. Patent Owner identifies Content Square Israel Limited and Content Square SAS as real parties-in-interest. Paper 6, 1.

C. Related Matters

The parties indicate that the ’081 patent is involved in *Content Square SAS et al. v. Quantum Metric, Inc.*, 1-20-cv-00832 (D. Del.), and *Content Square SAS v. Decibel Insight Ltd.*, 1-20-cv-11184 (D. Mass.). Pet. 84; Exs. 1039, 1040; Resp. 8. The parties indicate that additional patents (US 10,063,645, US 7,941,525, US 9,792,365, and US 10,079,737) are at issue in the above-listed proceedings, and are the subject of *inter partes* review proceedings IPR2021-00364, IPR2021-00464, IPR2021-00530, and IPR2021-00416, respectively. Pet. 86; Paper 6, 2–3. Patent Owner indicates that U.S. Patent 10,749,976 and pending U.S. Patent Application 16/931,064 claim the benefit of priority to the ’081 patent. Paper 6, 2.

D. The '081 Patent

The '081 patent is titled “Method and System for Monitoring an Activity of a User.” Ex. 1001, code (54). According to the '081 patent, prior art programs for monitoring and analyzing user traffic on a network server are limited in both the scripts used to collect information, and also the type of information collected. *Id.* at 1:38–39, 2:10–13, 3:15–17. The '081 patent proposes a solution that is “client[-]side based, support[s] cross-domain operation[,] and will collect information beyond traditional ‘per-page’ data.” *Id.* at 3:63–67. Figure 1A is reproduced below.

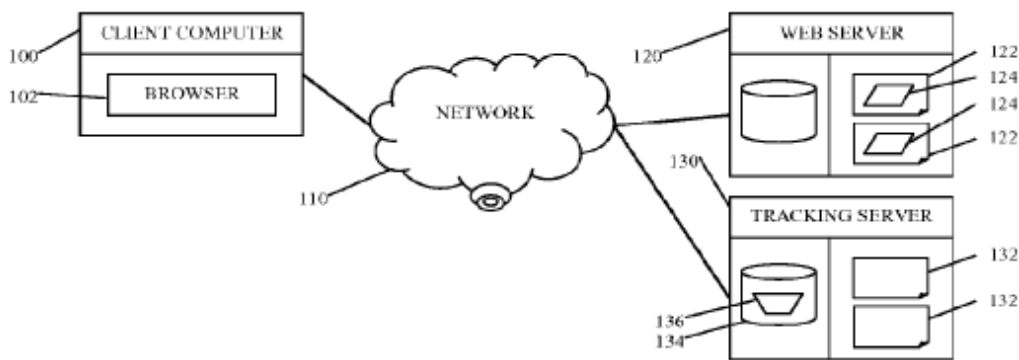


Figure 1A

Figure 1A, above, depicts one embodiment of a monitoring system. *Id.* at 5:4–5. A client computer 100 requests to download web page 122, which web page is returned by web server 120 with embedded tracking code script 124. *Id.* at 6:10–12, 6:26–28. The tracking code, in response to detecting user activities, “compresses and buffers user activity information, and selectively transmits the compressed user activity information.” *Id.* at 7:4–7.

The user activity information includes, for example, “load, unload, scroll, mousemove, mousedown, mouseup, click, resize, keydown, keypress, keyup, paste, mouseleave, mouseenter, activate, deactivate, focus, blur, select, selectstart, submit, error, abort, etc.”; this information may be transmitted along with other properties, for example if for a “mouse event,” then “x, y coordinates of the cursor and the state of the mouse buttons.” *Id.* at 7:59–8:5. The compressed user activity information is decompressed, then user visit information is generated by the tracking element in response to the user activity and web page content information. *Id.* at 10:9–14. The ’081 patent explains that the user activities may be analyzed or played back on, for example, a subscriber computer 600. *Id.* at 11:31–32, 15:5–10. Additionally, the processing or analyzing of user activities may include “compensating for differences between the visual representation of information at the client display, at a playback display[,], and the like.” *Id.* at 10:47–48, 10:53–56.

E. Challenged Claims

Petitioner challenges claims 1–22 of the ’081 patent. Of the challenged claims, claims 1, 6, and 10 are independent. Claim 1, reproduced below (with bracketed identifying labels added), is illustrative:

1. [1pre] A method for tracking an activity of a user, comprising:
[1a] receiving, by a tracking element, compressed user activity information representative of activities performed by the user during a visit to a web page, wherein the user activity information includes at least a position and a size of each element of a portion of the web page related to the user activity;

[1b] receiving, by the tracking element, web page content information representative of web page content displayed to the user during the visit;

[1c] decompressing the compressed user activity information;

[1d] generating user visit information by the tracking element, in response to the user activity information and in response to the web page content information; and

[1e] compensating for differences between a visual representation, on a tracking display, of the web page and between a visual representation of the web page on another display.

Ex. 1001, 17:18–35.

F. Prior Art and Other Evidence Relied Upon

Petitioner relies upon the references listed below (Pet. 2):

Name	Reference	Date	Exhibit No.
Koeppel	U.S. Patent Application Publication No. 2005/0177401 A1	Aug. 11, 2005	1005
Hentzel	U.S. Patent No. 6,877,007 B1	Apr. 5, 2005	1006
Smith	U.S. Patent No. 7,484,182 B1	Jan. 27, 2009	1007
Montero	U.S. Patent No. 6,133,912	Oct. 17, 2000	1010

Petitioner has shown that these references are prior art patents or printed publications under 35 U.S.C. § 102.¹ See Pet. 1–2; Ex. 1005, codes

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the application from which the ’081 patent issued was filed before this date, the pre-AIA versions of §§ 102 and 103 apply.

(22), (43); Ex. 1006, codes (22), (45); Ex. 1007, codes (22), (45); Ex. 1010, codes (22), (45).

Petitioner also relies on the Declaration of Jeremy Cooperstock, Ph.D. Ex. 1003 (“Cooperstock Decl.”). Patent Owner relies upon the Declaration of Christopher Schmandt. Ex. 2003 (“Schmandt Decl.”). Patent Owner further relies upon the New Penguin Dictionary of Computing. Ex. 2007.

G. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 1):

Claim(s) Challenged	35 U.S.C. §	References
1–22	103(a)	Koeppel, Hentzel, Smith
1–22	103(a)	Koeppel, Hentzel, Smith, Montero

II. DISCUSSION

A. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of

non-obviousness.² *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with these principles in mind.

B. Level of Ordinary Skill in the Art

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).

Here, Petitioner, citing to the Cooperstock Declaration for support, asserts that a person of ordinary skill in the art of the ’081 patent would have had a “Bachelor of Science degree (or equivalent degree) in Computer Science, Computer Engineering, or another academic discipline emphasizing the design/development of web-based technologies, in combination with at least one to two years of work experience with web-related technologies.” Pet. 2 (citing Ex. 1003 ¶¶ 15–16). Petitioner further asserts that “[s]uperior education could compensate for a deficiency in work experience, and vice versa.” *Id.* Patent Owner would require “a Bachelor of Science (or equivalent degree) in Computer Science or Computer Engineering, in combination with at least 2 years of additional experience with technologies

² Neither party presents evidence or arguments regarding objective evidence of non-obviousness in this proceeding.

related to media or web-based technology, or equivalent work experience.”
Resp. 15.

We do not perceive a significant difference between the two standards. We accept the assessment offered by Petitioner as it is supported by the Cooperstock Declaration and is consistent with the '081 patent and the asserted prior art. We note that our analysis would not change if we accepted the assessment offered by Patent Owner.

C. Claim Construction

In an *inter partes* review, we construe a patent claim “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).” 37 C.F.R. § 42.100(b) (2021). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Both Petitioner and Patent Owner submit that no claim constructions are necessary. Pet. 3; Resp. 16.

“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs, Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). For the purposes of this Decision, we do not expressly construe

any claim terms, except as through our discussion of the claims in view of Petitioner's proposed combination of prior art.

D. Asserted Obviousness of Claims 1–22 over Koeppel, Hentzel, and Smith

Petitioner contends that claims 1–22 of the '081 patent are unpatentable as obvious under 35 U.S.C. § 103(a), over the combined teachings of Koeppel, Hentzel, and Smith. Pet. 1. Petitioner also relies upon the Cooperstock Declaration to support its positions. Ex. 1003. At this stage of the proceeding, we are persuaded by Petitioner's explanations and supporting evidence. We begin our analysis with a brief overview of Koeppel, Hentzel, and Smith.

1. Overview of Koeppel (Ex. 1005)

Koeppel is titled "System and Method for Performing Web Based In-View Monitoring." Ex. 1005, code (54). Koeppel relates to monitoring and collecting user responses to Web-based content. *Id.* ¶ 3. Figure 1, as annotated by Petitioner, is reproduced below. Pet. 6.

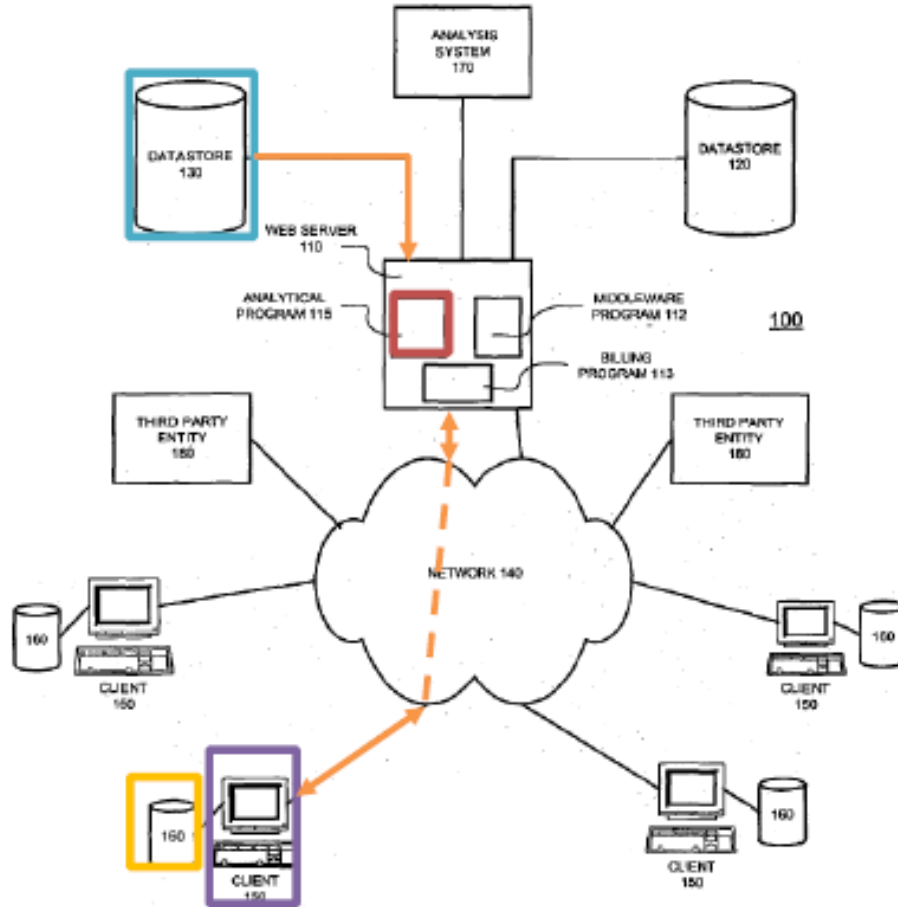


FIGURE 1

Figure 1, as annotated by Petitioner, portrays elements of a Web-based network. Ex. 1005 ¶ 26. A client-side data store 160, highlighted by Petitioner in orange, collects user activity such as “click-throughs,” screen scrolling, and mouse movements. *Id.* ¶¶ 21, 45. Activity data indicated by Petitioner’s orange lines is sent, via client computer 150 and network 140, to Web server 110. *Id.* ¶¶ 21, 45–46. On Web server 110, analytical program 115 determines in-view characteristics of the content at client computers 150. *Id.* ¶ 49. Data store 130 (highlighted by Petitioner in blue), connected

to Web server 110, stores content and rules for rendering content. *Id.* ¶ 52. The content may include attributes associated with content renderings, such as document structure, size, and positioning. *Id.* Annotations by Petitioner highlight data store 160 and client computer 150, connected through double-arrow-ended lines through network 140 to analytical program 115, to which an arrow points from data store 130. Pet. 6.

2. *Overview of Hentzel (Ex. 1006)*

Hentzel is titled “Method and Apparatus for Tracking a User’s Interaction with a Resource Supplied by a Server Computer.” Ex. 1006, code (54). Hentzel relates to tracking a user’s interaction with a computer resource to recreate and display the user’s interactive session. *Id.* at 2:8–25. Through such efforts, a resource such as a Web page can be improved to make it more user friendly, more easily navigable, and more effective in communicating its advertising to the user. *Id.* at 2:59–65. Figure 1, as annotated by Petitioner, is reproduced below. Pet. 11.

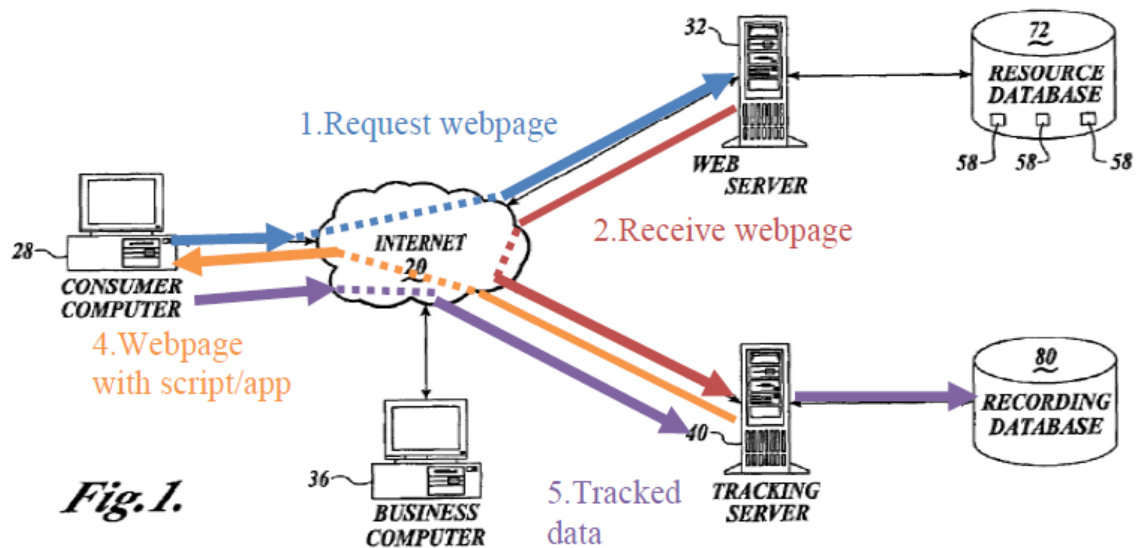


Figure 1 above, as annotated by Petitioner, portrays a system for tracking a user's interaction with a resource such as a Web page. Ex. 1006, 3:27–30. A user at computer 28 requests a Web page 58 from Web server 32, as annotated by Petitioner with blue arrows. *Id.* at 3:30–33. Web server 32 redirects the user to tracking server 40, as annotated by Petitioner with a red arrow. *Id.* at 3:33–36. Tracking server 40 records the user's interaction with the Web page, including mouse movements, button clicks, and typing. *Id.* at 3:55–59. Subsequently, the recorded session may be analyzed by a business using computer 36. *Id.* at 3:59–61. Petitioner's annotations add the text of "1. Request webpage," "2. Receive webpage," "4. Webpage with script/app," and "5. Tracked data," with colored arrows connecting the components, the colors coded to the numeric annotations. Pet. 11.

3. *Overview of Smith (Ex. 1007)*

Smith is titled “Rendition-Based Graphical Layout Management.” Ex. 1007, code (54). Smith relates to graphical layout management techniques including resizing of graphical user interfaces. *Id.* at 3:24–32. According to Smith, when a graphical user interface is resized, determining the sizing and placement of panels within that window is “complicated for a sophisticated developer and may be beyond the skill level of some designers.” *Id.* at 2:23–27. In Smith’s technique, a designer provides at least two graphical layouts of different sizes. *Id.* at 3:33–42, 4:60–63. The graphical layouts, or “constraint images,” are then operated upon by computer programming to resize the user interface window. *Id.* at 7:41–48. Using dynamic interpolation or extrapolation, the programming may render a plurality of different sized interfaces. *Id.* at 3:26–32, 7:49–8:20. The interpolative and extrapolative formulas may include absolute and proportional values of the window, portions of the window, and proportions relative to other panes within the window. *Id.* at 8:21–32.

4. *Claim 1*

a) *Limitations [1pre], [1a], [1b], [1c]*

The preamble of claim 1 recites “[a] method for tracking an activity of a user, comprising.” Ex. 1001, 17:18. Petitioner asserts that this language, to the extent it is limiting, is met by Koeppel, Hentzel, and Smith’s “track[ing] an activity (e.g., scrolling, link/component selections/clickthroughs, mouse movements, mouseovers, browser resizing) of [Koeppel’s] user client node 150[.]” Pet. 34 (citing Ex. 1005, Abstract,

¶¶ 5–9, 18–22, 37–45, 49–55, 67–75, 81–161, 167–181, claims 14, 20, Fig. 1; Ex. 1006, 3:33–58, 7:45–50, 8:48–61, 9:51–11:8, 12:21–14:27; Ex. 1003 (Cooperstock Decl.) ¶¶ 131–140).

Petitioner, supported by Dr. Cooperstock, asserts that “a POSITA would have found it obvious to implement Hentzel’s tracking server components . . . either within [Koeppel’s] Web server 110 or a separate tracking server 40, as in Hentzel.” *Id.* at 36 (citing Ex. 1003 ¶ 136). Specifically, Petitioner asserts that Koeppel’s “server-side analysis” of a user’s interactions with a web page, when combined with the playback functionality of Hentzel, would “enabl[e] a more in-depth analysis” of the interactions and how the content provided on the page can be improved, because Hentzel’s visualization of a user’s interactions “provides additional insight regarding users’ behaviors while on the page.” *Id.* at 23–25 (citing Ex. 1003 ¶¶ 106–110; Ex. 1006, 1:20–47, 1:59–65). Petitioner explains that both Koeppel and Hentzel collect user activity and use a server to analyze how to improve content provided on the web page; and the combination therefore uses “a known technique to improve similar devices in the same way[] and combin[es] prior art elements according to known methods to yield predictable results,” namely visual and statistical analysis of the user’s interactions with the page. *Id.* at 25 (citing Ex. 1003 ¶ 111).

Element [1a] recites “receiving, by the tracking element, compressed user activity information representative of activities performed by the user during a visit to a web page, wherein the user activity information includes at least a position and a size of each element of a portion of the web page

related to the user activity.” Ex. 1001, 17:19–24. Petitioner contends that this element is met by Koeppel, Hentzel, and Smith’s client side script, applet, or application collecting both activity data about user activities; and also “‘in-view features,’ which include size and position information for elements (e.g., components) of the page, in association with/relative to the event data.” Pet. 38–40 (citing Ex. 1003 ¶¶ 141–148, 174; Ex. 1005, Abstract, ¶¶ 18–21, 38–41, 55, 70–75, 82–87, 98, 154–158, 173–178, Fig. 1, claims 14– [sic], 201 [sic], 20, 76–85; Ex. 1006, 3:33–58, 7:45–50, 8:48–61, 9:65–11:8, 12:21–13:15, 13:60–14:27, Fig. 4; Pet. 5–34; Ex. 1001, 10:61–66). Petitioner explains that Koeppel collects position and dimension information, e.g., height and width, of the components rendered within a Web page. *Id.* at 39–40 (citing Ex. 1005 ¶¶ 83–84, 105–106; Ex. 1003 ¶¶ 143–145; Ex. 1013 ¶¶ 9, 44).

Petitioner further relies on Hentzel’s tracking application 90, which compresses user activity data for streaming to tracking server 40. Pet. 20–22, 41 (citing Ex. 1006, 9:65–10:5, 12:21–43; Ex. 1003 ¶ 147). Petitioner, pointing to Koeppel’s desire to “‘control[]’ the ‘enormous’ amount of data collected ‘by the programming of the client side script,’” asserts that an ordinarily skilled artisan would have “modif[ied] Koeppel’s client side scripts to enable data compression prior to its transmission over the network,” for “more efficient collection and transmission of data over a network.” *Id.* at 21–22 (citing Ex. 1003 ¶¶ 101–103) (emphasis omitted). Petitioner, relying on its declarant, additionally asserts that data compression was “well known” at the time of the invention, and that the modification

uses “a known technique to improve similar devices in the same way[] and combin[es] prior art elements according to known methods to yield predictable results.” *Id.* at 22 (citing Ex. 1003 ¶ 104).

Element [1b] recites “receiving, by the tracking element, web page content information representative of web page content displayed to the user during the visit.” Ex. 1001, 17:25–27. Petitioner contends that the combination of Koeppel, Hentzel, and Smith meets the limitation in one of two ways, depending on whether Hentzel’s tracking server 40 is implemented in the combined system as separate from, or a part of, Koeppel’s Web server 110. Pet. 42–43 (citing Ex. 1003 ¶¶ 150, 152; Ex. 1005 ¶¶ 37–45, 51–56, 155–157; Ex. 1006, 9:47–48, 10:15–41, 13:30–14:27, Figs. 1, 4). In either configuration, Hentzel’s playback viewer application 96 requests the web page from the tracking or Web server, as applicable, for playback. *Id.* (citations omitted).

Petitioner, supported by Dr. Cooperstock, asserts that in both scenarios, an ordinarily skilled artisan “would have understood, or found obvious” that the tracking server or Web server, as applicable, receives the web page from where it is stored, for example in the recording database 80 of Hentzel or the data store 120 of Koeppel, respectively, before providing it to the playback viewer application. *Id.* at 42–43 (citing Ex. 1006, 10:15–41, 13:30–14:27, Figs. 1, 4; Ex. 1003 ¶¶ 151–152).

Element [1c] recites “decompressing the compressed user activity information.” Ex. 1001, 17:28. Petitioner asserts that an ordinarily skilled artisan would have understood or found obvious that compressed user

activity information would be decompressed prior to storage. Pet. 23, 43–44 (citing Ex. 1003 ¶¶ 106, 154–155; Ex. 1006, 10:23–41, 13:30–14:27; Ex. 1010, 13:30–67). Alternatively, Petitioner asserts, because Hentzel teaches “receiving compressed data from a client computer and enabling playback using this data,” an ordinarily skilled artisan would have understood or found obvious that the compressed data would have been decompressed “at least prior to any analysis of this data.” *Id.* at 23, 44 (citing Ex. 1003 ¶¶ 106, 156–157; Ex. 1006, 10:15–41, 13:30–14:27; Ex. 1005 ¶¶ 67–75, 157–167, 178–181; Ex. 1010, 13:30–67).

Patent Owner does not specifically contest that recitations [1pre], [1a], [1b], and [1c] are taught by the combination of references. *See generally* Resp. In view of the record, we determine that Petitioner has shown, by a preponderance of the evidence, the preamble and these limitations to be taught by the combination of Koeppel, Hentzel, and Smith. We need not determine whether the preamble is limiting because, regardless of whether the preamble is limiting, Petitioner shows sufficiently that the prior art satisfies the recitation in the preamble.

b) *Limitations [1d] and [1e]*

Element [1d] recites “generating user visit information by the tracking element, in response to the user activity information and in response to the web page content information.” Ex. 1001, 17:29–31. Petitioner avers that the Specification of the challenged patent “simply states ‘generating user visit information by the tracking element’ includes ‘compensating for the difference between a visual representation, on a tracking display, of the web

page and between a visual representation of the web page on another display,’ as recited in [1e].” Pet. 44–45 (citing Ex. 1001, 10:11–24, 11:6–22; Ex. 1002, 239). Therefore, Petitioner asserts, “this Petition addresses [1d] along with the [1e] analysis.” *Id.* at 45.

Element [1e] recites “compensating for differences between a visual representation, on a tracking display, of the web page and between a visual representation of the web page on another display.” Ex. 1001, 17:32–35. In its combined analysis of elements [1d] and [1e], Petitioner contends that these limitations are met, because “[i]n response to receiving [user activity information and web page content information], Koeppl-Hentzel-Smith’s tracking element generates records in the storage device . . . corresponding to the user’s session.” Pet. 46 (citing Ex. 1003 ¶¶ 141–153, 160; Ex. 1005 ¶¶ 37–45, 51–56, 82–87, 98, 154–159, Abstract, Fig. 1, claim 20; Ex. 1006, 3:33–58, 7:45–50, 8:48–61, 9:47–48, 9:51–10:7, 10:15–11:8, 12:21–43, 12:54–14:27, Fig. 4). Furthermore, Petitioner asserts, element [1e] is met by Smith’s code generation 213, which modifies or resizes a web page, along with its components, from the display of Koeppl’s client node 150, to “a smaller-sized window of [Hentzel’s] business computer 36.” *Id.* at 47–49 (citing Ex. 1003 ¶¶ 116–130, 159–169; Ex. 1005 ¶¶ 5–9, 21, 37–46, 51, 54–55, 61–66, 84–152, 154–165, 176–178, Figs. 1, 4A–4H; Ex. 1006, 3:33–58, 7:45–50, 8:48–61, 10:23–41, 10:67–11:8, 12:54–13:15, 13:60–4:1; Ex. 1001, 10:15–24, 11:6–15, Figs. 11A–11F; Ex. 1007, 3:23–55, 4:4–15, 6:1–8:50, 9:4–10, 10:36–54, Abstract, claims 1, 9, 17, 23).

Petitioner explains that the challenged patent discloses that “compensating for differences includes ‘transform[ing]’ the visual representation of the web page on the tracking display, which includes resizing the page’s elements.” *Id.* at 47 (citing Ex. 1001, 10:15–24, 11:6–15, Figs. 11A–11F). According to Petitioner, Smith’s code generation uses “default resizing parameters” whereby a height or width of a page element, for example, is retained constant while a user interface window is resized; or the code generation may alternatively or additionally use other resizing techniques, including “linear” or “non-linear function” for “interpolative and/or extrapolative formulas,” and “piece-wise linear resizing.” *Id.* at 48–49 (citing Ex. 1007, 6:16–43, 4:4–15, 7:30–8:50, 9:4–10, 10:36–54, Abstract; Ex. 1003 ¶¶ 116–130, 164–167; Ex. 1005, Fig. 1, ¶¶ 37–46, 51, 166–165, 176–178).

Petitioner, supported by Dr. Cooperstock, asserts that an ordinarily skilled artisan would have understood or found obvious that “the stored web page and its associated elements/components would need to be modified/resized for display within a smaller-sized window.” *Id.* at 27–28 (citing Ex. 1003 ¶¶ 117–118; Ex. 1006, 13:60–14:1, 10:23–41; Ex. 1005 ¶ 45; Ex. 1015 ¶¶ 8–11, 15–62). Relying on its declarant, Petitioner further asserts that modifying the system of Koeppel and Hentzel to include Smith’s resizing functionality “would have been straightforward” in view of Koeppel and Hentzel’s system already collecting similar data used by Smith’s code generation 213 for resizing, and “would have amounted to the use of a known technique to improve similar devices in the same way[] and

combin[es] prior art elements according to known methods to yield predictable results.” *Id.* at 32 (citing Ex. 1003 ¶ 127). Petitioner explains that Koeppel’s collection of the coordinate and size information of a web page and its components “is akin to the element/item position information collected by Smith’s system,” which Smith uses to resize the page. *Id.* at 30 (citing Ex. 1003 ¶ 121; Ex. 1005 ¶¶ 82–152; Ex. 1007, 3:32–60, 4:4–54, 5:42–7:8, 7:30–9:10, 10:36–54).

Patent Owner does not specifically contest that limitation [1d] is taught by the combination of references. *See generally* Resp. In view of the record, we determine that Petitioner has shown, by a preponderance of the evidence, that limitation [1d] is taught by the combination of Koeppel, Hentzel, and Smith.

Patent Owner contests Petitioner’s assertions regarding element [1e], arguing these limitations are not taught by the applied combination of Koeppel, Hentzel, and Smith. Resp. 45–53. Focusing on Smith, which Petitioner asserts teaches the limitations of [1e], Patent Owner argues that Smith’s teachings are limited to *a priori* adjustment and “would have no concept of how to resize elements in a client/server context.” *Id.* at 46 (citing Ex. 1007, 3:55–59; Ex. 2011 ¶¶ 173–175). Patent Owner points to Smith’s description that “desired resizing of items within a program’s user interface is managed through a developer graphically describing a plurality of different sized renditions of a desired user interface and other different sized renditions of the user interface being dynamically interpolated and/or

extrapolated through operation of the program.” *Id.* (citing Ex. 1007, 3:27–32; Ex. 2011 ¶ 175).

Patent Owner explains that Smith’s developer describes “constraint images,” i.e., user interface renditions, and Smith’s system generates code that dynamically provides user interface window resizing consistent with the constraint images. *Id.* at 46–47 (citing Ex. 1007, 7:41–45; Ex. 2011 ¶ 176). Smith may then interpolate or extrapolate from the images for resizing to an area not exactly matching any single constraint image. *Id.* at 47 (citing Ex. 1007, 8:33–42; Ex. 2011 ¶ 177). Patent Owner emphasizes that the constraint images are defined before the interface is displayed on a client node, with no collection or communication of layout information between devices, and argues that Smith does not teach compensating for any visual display differences between devices. *Id.* at 47–48 (citing Ex. 1007, 3:55–59, 7:41–52; Ex. 2011 ¶¶ 178–180). Patent Owner admits that Smith would allow an application or webpage to resize and rearrange user interface elements upon start or loading, but does not relate to future playback on another computer, and would not be aligned with any stored user actions. *Id.* at 38–40 (citing Ex. 2011 ¶¶ 149–151).

Patent Owner also argues that Smith teaches a resizing embodiment in which some items, such as the height of a menu bar, may be retained, thus preventing accurate compensation for the user activity in relation to the displayed items. *Id.* at 50–52 (citing Ex. 1007, 6:39–43; Ex. 2011 ¶¶ 191–194).

Patent Owner further argues that using collected layout information in Smith, such as through combination with Hentzel, would frustrate Smith's advantage of empowering the developer to graphically define the visual representations. *Id.* at 48, 50–51 (citing Ex. 1007, 7:20–25; Ex. 2011 ¶¶ 182–184, 186–187). Patent Owner further argues that Petitioner has not explained how Smith's code would operate in such a combination. *Id.* at 48–49. Patent Owner argues that if Smith's code is in the web server, there is no association with the consumer computer; if Smith's code is in the web page, the server would not know which version of the webpage to download to the tracking computer's browser. *Id.* at 49–50 (citing Ex. 2011 ¶ 185).

Petitioner counters by arguing that the “compensating” limitation does not require any user activity mapping across web pages on different displays. Reply 17–19. Pointing to Figure 11 of the '081 patent, Petitioner asserts that “compensating” encompasses “transforming/resizing page elements provided for display on a playback display relative to how those elements[] are displayed on the tracking display.” *Id.* at 19 (citing Ex. 1003 ¶¶ 42–44, 161–162; Pet. 47). Petitioner emphasizes that Figure 11 relates to the “coordinates of the various *cells* and *visual elements* – and not user activity coordinates.” *Id.* (citing Ex. 1001, 12:56–59).

Patent Owner replies by pointing to the “on a tracking display” limitation of limitation [1e]. Sur-reply 14. Patent Owner argues that this limitation requires tracking of user activity, and asserts that Petitioner's declarant, Dr. Cooperstock, admitted that “‘user visit information’ is incorporated into the claimed ‘compensation.’” *Id.* at 15–18 (citing

Ex. 1001, 17:18, 17:56, 18:23; Ex. 1003 ¶ 158). Patent Owner further points to its declarant, Mr. Schmandt, as making clear in deposition testimony that “correctly representing user activity with respect to the elements of a webpage ‘would be the effect of – the compensation has to achieve that effect yes.’” *Id.* at 18 (quoting Ex. 1042, 52:10–17).

We determine that the combination of Koeppel, Hentzel, and Smith proposed by Petitioner teaches the [1e] limitations of claim 1. Smith provides a flexible approach to dynamically resizing content for differently sized displays. Resizing is performed by using resizing constraints that capture position and proportion information. Ex. 1007, 6:1–20. The resizing constraints may be captured from a single constraint image, multiple constraint images, and/or default resizing parameters. *Id.* at 6:21–44.

Dr. Cooperstock has provided evidence that a person having ordinary skill in the art would have understood, or found obvious, the use of these constraints of Smith to non-linearly resize or transform a web page as a whole.

Ex. 1003 ¶¶ 119–126. Mr. Schmandt has provided testimony stating that at the critical time, different sizes of device displays were known that would differently display web pages. Ex. 1043, 23:4–11, 28:1–6. Mr. Schmandt has further characterized Hentzel as describing rendering the display of one computer in differently sized dimensions on a second computer, in order to eliminate (or compensate for) visual representation differences by matching the dimensions of the browser window on the first computer. *Id.* at 60:12–61:8; Ex. 2011 ¶ 130. Mr. Schmandt further states that based on Smith’s teachings, Hentzel’s resizing would “render a user interface based on a

constraint image selected according to the dimensions of the window in which the user interface was displayed,” such that the user interface would be resized. Ex. 1043, 60:4–11, 61:4–17. Thus, each expert’s testimony tends to support that the combination results in limitation [1e]’s recitation of “compensating for differences between a visual representation, on a tracking display, of the web page and between a visual representation of the web page on another display.” In view of the evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Koeppel, Hentzel, and Smith teaches the limitations of [1e].

Patent Owner’s arguments to the contrary do not alter this determination. With respect to Patent Owner’s argument that the combination would frustrate the purpose of Smith, the test for obviousness is “what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Here, Petitioner applies the teachings of Smith to provide an advantage to the combined teachings of Koeppel and Hentzel; i.e., to use Smith’s feature resizing to further Koeppel and Hentzel’s goal of accurately representing what images appear on a remote computer’s screen. Pet. 15–16, 50–51. Accordingly, an alleged lack of improvement to Smith alone does not alter our determination.

We next address Patent Owner’s arguments that the claimed “compensating for differences between a visual representation, on a tracking display, of the web page and between a visual representation of the web page on another display” necessarily involves compensation of any other

user information. However, we determine these arguments to be unsupported by the record. First, claim 1's compensating is explicitly stated to be only of "a visual representation," not the entirety of the user activity information, or necessarily any of the user visit information. Ex. 1001, 17:33–35 (emphasis added). Second, we agree with Petitioner's cited support from the Specification illustrating conversion of the page elements, not the tracked activity. Reply 19; Ex. 1001, Fig. 11C. Third, because the Specification describes that the tracking comprises user activity information representative of "keyboard events" (Ex. 1001, 7:59–8:2; Resp. 24), the tracking in its parent claim 1 must be broad enough to also encompass keyboard stroke activity, and Patent Owner has acknowledged that keyboard activity does not have size, position, or coordinates; i.e., a visual representation. Tr. 22:22–24. Fourth, claim 2 further indicates that the compensating is responsive to the relative locations of the "visual elements of the web page," not of the user activity. Patent Owner's arguments do not explain why this claimed association would also require size and position conversion of tracked activity, including keyboard activity not having size or position, in step [1e].

Although Patent Owner points to Dr. Cooperstock's statement that "generating user visit information" would include "compensating for differences," we find that statement to be premised on language not found in the current claims. Sur-reply 23–24 (citing Ex. 1003 ¶ 158). Dr. Cooperstock based that interpretation on "then-pending claim 14," which recites "generating the user visit information further comprises:

compensating for differences.” Ex. 1003 ¶ 158 (emphasis omitted). Claim 1 contains different language that does not further limit the generated user visit information to any compensation for differences, instead linking the “generating” and “compensating” limitations by an “and” conjunction. Ex. 1001, 17:29–35. Under questioning, Dr. Cooperstock clarified that his statement in an earlier declaration in which user activity was part of the compensating limitation was “not part of the Hentzel-Koeppel-Smith combination.” Ex. 2012, 153:9–154:14. Thus, consistent with Petitioner’s assertions, we determine that claim 1 does not require compensation of the user activity part of the user visit information, only compensation of the visual representations of the web page between two displays.

Further, claim 2 recites that the compensating is “responsive to the relative locations of visual elements of the web page.” Ex. 1001, 17:36–38. Claim 1 distinguishes between the two types of recorded user activity, which are “activities performed by the user during a visit to a web page,” and “a position and a size of each element of a portion of the web page related to the user activity.” *Id.* at 17:19–24. Claim 2 addresses only the visual elements “of the web page,” not any activities being performed by the user. And claim 1 also states that the compensation is between visual representations “of the web page,” not the user activities being performed. *Id.* at 17:32–35. Consequently, neither the language of claims 1 or 2 requires compensation of the user activity information.

Consequently, we determine that step [1e] does not require the tracked user activity to be converted. Because we determine that the claim does not

require converting the tracked activity data, we do not address whether such is taught by the “non-ground” references.³ For the same reason, we do not agree with Patent Owner’s arguments against the Petitioner’s reason to combine the references, including inoperability of the combination, which are based upon such an alleged claim requirement.

Nor do we agree with Patent Owner’s argument that Smith’s reliance on initial constraints precludes combining Smith’s teachings to operate with constraints from the screen displays of Koeppel combined with Hentzel. Petitioner relies upon Smith for teaching the use of “element/item layout information (resizing constraints) of one or more renditions of the web application to resize the layout/appearance of elements for a particular sized window.” Pet. 29 (citing Ex. 1007, 4:4–15, 6:1–7:8, 7:30–9:10, 10:36–54; Ex. 1003 ¶ 119). Petitioner further states that the system taught by Koeppel in view of Hentzel collects “similar type of data that is used by Smith’s code generation 213 as resizing constraints.” *Id.* at 32 (citing Ex. 1003 ¶ 127). Thus, Petitioner relies upon the teachings of Smith subsequent to entry of the resizing parameter data; that is, not including the generation of data from the developer that is supplied to the resizing program. Instead, Petitioner relies upon the teachings of Koeppel and Hentzel to supply the resizing parameter data.

³ Nor need we consider Petitioner’s objection to Patent Owner’s Sur-reply addressing the “non-ground” reference issue. Paper 38; Tr. 29–40 (agreeing that absent a finding that user activity is built into the compensating step, no prejudice is created against Petitioner due to arguments in the Sur-reply).

Further, Mr. Schmandt testifies in a deposition that based on Smith's teachings, Hentzel's resizing would "render a user interface based on a constraint image selected according to the dimensions of the window in which the user interface was displayed." Ex. 1043, 60:4–11. Dr. Cooperstock also presents such a combination as "amount[ing] to the use of a known technique to improve similar devices in the same way, and combining prior art elements according to known methods to yield predictable results," and that such a modification would have been "straightforward." Ex. 1041 ¶ 127.

Consequently, the evidence of record supports Petitioner's assertion that one having ordinary skill in the art would have recognized the applicability of Smith's constraints to Hentzel's resizing, and thus to the combined teachings of Koeppel and Hentzel. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that the limitations of [1e] are taught by the combined teachings of Koeppel, Hentzel, and Smith.

c) Reason to Combine

With respect to the reason to combine the teachings of Koeppel, Hentzel, and Smith, Petitioner provides reasons to modify the teachings of Koeppel based on the teachings of Hentzel and Smith. Pet. 19–34. We determine that Petitioner has shown, by the preponderance of the evidence, that a person of ordinary skill would have combined the references.

(1) *Koeppel and Hentzel*

With respect to compression of data prior to transmission, taught by Hentzel, Petitioner states that it would have been obvious to implement in Koeppel, because Koeppel discusses that an enormous amount of user data is transmitted and such is controlled by the client-side script, and because compression would have enabled such control through a straightforward, known modification of Koeppel. *Id.* at 21–22 (citing Ex. 1002 ¶¶ 99–101; Ex. 1005 ¶¶ 154, 168). With respect to session playback or visualization for assessing the effectiveness of content, as taught by Hentzel, Petitioner states that it would have been obvious to implement such in Koeppel to enable an in-depth analysis of user interactions, providing a robust system that provides additional, complementary insight regarding user behaviors. *Id.* at 22–25 (citing Ex. 1003 ¶¶ 105–110; Ex. 1005 ¶¶ 155–156; Ex. 1006, 1:20–47, 8:48–61, 9:65–10:7). Petitioner contends that both such modifications of Koeppel would have amounted to the use of a known technique to improve similar devices in the same way, and combining prior art elements according to known methods to yield predictable results. *Id.* at 22, 25 (citing Ex. 1003 ¶¶ 104, 111).

Patent Owner argues against that Petitioner has not shown that a person of ordinary skill in the art would have been motivated to combine Koeppel with Hentzel’s reply and visualization teachings. Resp. 30–32. Patent Owner argues that Koeppel relates to determining whether web content is in the view of a user’s browser to appropriately track user activities and bill for viewed advertising. *Id.* at 30. Patent Owner argues

that Koeppel does not describe any display of user activity on a second device for further analysis, and attempts to avoid issues created by further analysis. *Id.* at 30–33 (citing Ex. 1005 ¶ 16; Ex. 2011 ¶ 122). Patent Owner argues that inserting Hentzel’s playback/visualization functionality into Koeppel therefore does not benefit Koeppel’s system seeking to avoid later analysis such as replay, and is inconsistent with Koeppel’s goal of streamlined and real-time automated content adjustment. *Id.* at 31–32 (citing Ex. 1005 ¶¶ 15–16, 20–22; Ex. 2011 ¶¶ 122, 127); Sur-reply 4–8.

Although Patent Owner argues that Koeppel is designed to avoid the complexity of further analysis, the Federal Circuit has recognized that “[a] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (alteration in original). Further, “simplicity of the prior art is rarely a characteristic that weighs against obviousness of a more complicated device with added function.” *In re Dance*, 160 F.3d 1449, 1344 (Fed. Cir. 1998). Thus, Patent Owner’s argument that adding Hentzel’s playback and visualization functionality adds complexity is considered, but does not obviate Petitioner’s provided reason to combine based on an advantage; namely, providing a more in-depth analysis, through visualization of user interactions with web page content, of how content can be optimized. Pet. 24–25. Nor does it obviate Petitioner’s other reason to combine, in that implementing Hentzel’s playback functionality in Koeppel “would have amounted to the use of a known technique to improve similar

devices in the same way, and combining prior art elements according to known methods to yield predictable results—functionality that provides a visualization and statistical analysis of a user’s interactions.” *Id.* at 25.

The record supports Petitioner’s reasons to combine, as furthering Koeppel’s goal of determining the “‘effectiveness’ of particular content based on user activities with respect to that content,” by monitoring “[d]etailed user responses associated with” the content to adjust the content for targeted advertising. Ex. 1005 ¶¶ 21–22, 39; Resp. 30; Sur-reply 7 (Koeppel collects data “while the users are accessing Web sites, and automatically adjust the content presented in the Web site to target selected users.”). Petitioner also points to statements of Patent Owner’s declarant, Mr. Schmandt, indicating that Koeppel does collect and analyze user activity data. Reply 4–5 (citing Ex. 1043, 64:13–17 (Koeppel’s “software can change the appearance of the page for the next visitor or visitors.”), 71:15–73:1 (Koeppel’s “program has access to the detailed activities that were recorded. And it uses that to perform the rest of its processing.”)).

With respect to the reason to combine Hentzel’s reviewer-based system with Koeppel’s automated, real-time system, Petitioner asserts Patent Owner’s cited “time consuming” activities of Koeppel relate to adjusting web page content, e.g., the content of the advertisements, not analyzing user activity data as would be modified by the teachings of Hentzel. Reply 4 (citing Ex. 1005 ¶ 15). Further, Petitioner points to a non-automatic embodiment of Koeppel that “describes a content provider being provided user activity statistics and ‘suggestions’ on how to modify content—without

such changes being applied automatically,” by providing a content effectiveness record for review. *Id.* at 5 (citing Ex. 1005 ¶¶ 178–180).

Patent Owner argues that the content effectiveness record does not itself provide the reason to combine Hentzel’s playback and visualization in view of Koeppel’s otherwise automated system. Sur-reply 5–8. However, Koeppel’s embodiment of a content effectiveness record that suggests, but does not automatically implement, content changes undercuts Patent Owner’s argument that Koeppel seeks to avoid any further analysis and that a person of ordinary skill viewing Koeppel would be uninterested in improvements that are not strictly related to automated content replacement.

Consequently, we determine that the purported “streamlined” nature of Koeppel does not undermine the reasoning and evidence provided by Petitioner supporting the reasons to combine the teachings of Hentzel. We determine that the presented evidence, including the advantages of data compression for efficient transmission, and additional, complementary insight regarding user behaviors, provides a reason for a person having ordinary skill in the art to combine the teachings of Koeppel and Hentzel.

(2) *Koeppel, Hentzel, and Smith*

With respect to modifying the combined teachings of Koeppel and Hentzel in view of the teachings of Smith, Petitioner contends that a person having ordinary skill in the art would have understood or found obvious that a difference in the relative dimensions of remote and local displays, as known in the art at the pertinent time, could necessitate resizing of objects therein, and that Smith provides a specific manner of doing so. Pet. 27–29

(citing Ex. 1003 ¶¶ 116–119); Reply 6–11. Petitioner contends that such a modification would have amounted to the use of a known technique to improve similar devices in the same way, and combining prior art elements according to known methods to yield predictable results, which would have been straightforward because the system taught by Koeppel in view of Hentzel collects data similar to Smith’s resizing constraints. Pet. 30–32 (citing Ex. 1003 ¶ 127). Petitioner further points to the well-known nature of resizing web pages for different displays, and to enabling dynamic resizing for a playback computer, as reasons to combine the teachings of Smith to modify the teachings of Koeppel in view of Hentzel. *Id.* at 33–34 (citing Ex. 1003 ¶¶ 129–130).

Further, in Petitioner’s combined system, Smith’s resizing program applies different resizing techniques—linear or non-linear resizing, or piecewise linear resizing—based on the number of tracked client nodes 150 of Koeppel, i.e., constraint images. *Id.* at 47–49 (citing Ex. 1007, 4:4–15, 6:21–32, 7:53–8:20, 8:37–50, 9:4–10, 10:36–54, Abstr.). Petitioner asserts that the multiple client nodes whose information is tracked by Koeppel’s web server could each include different-sized displays, which information would need to be resized for the business computer’s display. *Id.* at 33–34, 48–49 (citing Ex. 1003 ¶¶ 116–130).

Patent Owner argues that Koeppel does not describe any compensation for different visual representations, or any use of differently sized displays. Resp. 33, 36–37; Sur-reply 10. Patent Owner argues that Hentzel’s technique of exactly reproducing the browser size and placement

on a remote screen does not contemplate any difference in display dimensions, but instead is focused on maintaining browser window dimensions. Resp. 35; Sur-reply 10. Patent Owner dismisses as “pure conjecture” Petitioner’s argument that the remote computer may have a larger display than the local computer, and therefore would motivate resizing. *Id.* at 35–36; Sur-reply 10. Patent Owner argues that the existence of devices having different size displays does not address why a person having ordinary skill in the art would have been motivated to add Smith’s resizing feature. Resp. 34–35; Sur-reply 10–11. Patent Owner further argues that none of Koeppel, Hentzel, and Smith supplies this motivation. Resp. 37–38 (citing Ex. 2011 ¶¶ 142, 146).

We do not agree with Patent Owner’s arguments. As discussed in both Koeppel and Hentzel, computerized displays were known to exist in many different sizes at the critical time. Pet. 28, 33; Ex. 1006, 5:10–6:5, 7:27–41; Ex. 1005 ¶ 45; Reply 8. Dr. Cooperstock and Mr. Schmandt both confirmed the prevalence of differently sized displays at the critical time. Reply 8–9 (citing Ex. 1043, 23:4–25:6; Ex. 2011 ¶ 23). Dr. Cooperstock states that such differently sized displays could cause difficulties with Hentzel’s objective of providing a browser window (e.g., user interface) on the local display that has the “same dimensions” as on a remote display, when the local display is smaller than the remote display. Ex. 1003 ¶¶ 116–118 (emphasis omitted). Dr. Cooperstock states that a person having ordinary skill in the art would have found it obvious to resize to a smaller window displayed on the local display. *Id.* ¶ 118. We find this consistent

with Hentzel’s goal of “recreating ‘the events [on the remote display] as accurately as possible so that the browser will be unable to differentiate between a replayed mouseclick and an actual user click.’” *Id.* ¶ 139; Ex. 1006, 10:37–41.

Patent Owner considers Dr. Cooperstock’s reasoning to be speculative because no reference explicitly sets forth such a situation and states that resizing would be desirable. Resp. 37 (citing Ex. 2011 ¶ 134) (“a POSITA would have no motivation to address different display sizes because that problem is not even contemplated by Koeppel or Hentzel”). However, a reason to combine references in an obviousness inquiry is not limited to disclosures in the cited references, but can be based on “articulated reasoning with some rational underpinning,” and may “take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 US 398, 418 (2007). We find that the evidence of record supports Petitioner’s reasoning that a person of ordinary skill in the art, faced with replicating displayed windows on displays of different sizes, would recognize the advantages of window resizing such as taught by Smith.

Therefore, Petitioner has shown, by a preponderance of the evidence, that an ordinarily skilled artisan would have found it obvious to combine the constraint-based resizing teachings of Smith into the combined system of Koeppel and Hentzel.

5. Claims 4, 6, 8, 10, 13, and 15–22

With respect to claims 4, 6, 8, 10, 13, and 15–22, Petitioner points to

specific teachings from Koeppel, Hentzel, and Smith as meeting the additional limitations set forth in those claims. Pet. 48–62. Patent Owner makes no arguments specific to these claims. *See generally* Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

With respect to claim 4, Petitioner highlights that “tracking server 40 receives, from Web server 110, ‘a copy of the most recent version of the [web page] requested by the user’ and ‘permanently stores [this] copy of the requested [web page].’” Pet. 57 (citing Ex. 1003 ¶¶ 149–53, 188–89; Ex. 1006, 9:5–66; Ex. 1005 ¶¶ 37–41, 56–57) (alterations in original).

With respect to claims 6 and 10, Petitioner points to teachings in each of Koeppel, Hentzel, and Smith for the non-transitory computer-readable medium of claim 6, and the system having the processor and interface of claim 10. *Id.* at 59–61, 63–65. Petitioner points to Koeppel’s implementation through a computer or Web server system that is equipped with Web server software. *Id.* at 59, 64 (citing Ex. 1005 ¶ 144, Fig. 1). Petitioner also points to Hentzel’s web server and tracking server, each having a memory, processor, and web server application. *Id.* at 59–60, 65 (citing Ex. 1006, Figs. 4–5, 7:57–8:47). Petitioner further points to Hentzel’s interface 76, located in tracking server 40, receiving data from the network, and to Hentzel’s interface located in the web server 110. *Id.* at 65–66 (citing Ex. 1006, Figs. 1, 4, 10; Ex. 1003 ¶¶ 214–219). Because Petitioner has shown these limitations of the preambles of claims 6 and 10 in

the prior art combination, we need not determine whether the preambles are limiting.

With respect to claim 8, Petitioner points to the teachings highlighted above for claims 4 and 6. *Id.* at 63. With respect to claim 13, Petitioner points to the teachings highlighted above for claims 4 and 10. *Id.* at 69.

With respect to claim 15, Petitioner points to teachings in both Koeppel and Hentzel for collecting user scrolling data. *Id.* at 69–70 (citing Ex. 1005 ¶¶ 38, 41, 55, 82–87, 154; Ex. 1005, 3:37–40, 8:48–61, 9:65–67, 12:24–39).

With respect to claim 16, Petitioner points to storage of the version of the web page that was requested by the user; i.e., the web page’s content, by Hentzel’s tracking server 40, or by components within web server 110, which is transmitted to business computer 36. *Id.* at 70–71 (citing Ex. 1006, 9:31–48, 13:56–66; Ex. 1003 ¶¶ 229–230).

With respect to claims 17–22, Petitioner points to Hentzel’s playback viewer application 96 as receiving “session data”; i.e., user activity information, and playing back this information on the display of business computer 36. *Id.* at 71–72.

Upon review of the record, we agree with this assessment of the references, and we determine that Petitioner has shown, by a preponderance of the evidence, that these claims are taught by the Koeppel-Hentzel-Smith combination.

6. *Claims 2, 3, 7, 11, and 12*

Petitioner asserts that the combination of Koeppel, Hentzel, and Smith teaches or suggests all of the limitations recited in claims 2, 3, 7, 11, and 12. Pet. 53–54, 62, 68–69. With respect to claims 2, 7, and 11, Petitioner points to Koeppel’s collection of “coordinate and size information related to the browser window, the Web-page rendered within the browser window and components rendered within the Web page,” including determining the position of components (i.e., visual elements) “in relation to the web page” and/or “in relation to the [displayed] browser window” at the client node. *Id.* at 53 (citing Ex. 1005 ¶¶ 84–85, 105–106, 152; Ex. 1003 ¶ 179) (alteration in original). Petitioner further points to Smith’s “code generation 213 [as] resiz[ing] the interface for a different sized rendition based on ‘relative position information’ for elements/panes on the page.” *Id.* at 54 (citing Ex. 1007, 6:1–20).

With respect to claims 3 and 12, which depend from claims 2 and 11, respectively, Petitioner points to code generation component 213 controlling “certain aspects of items” “while allowing resizing of a user interface window to otherwise adjust the items therein proportionately.” *Id.* at 54–55 (citing Ex. 1007, 6:33–43). Petitioner relies upon Dr. Cooperstock’s explanation that “some elements are resized using ‘default resize parameters,’ while others are resized using the proportion/scale used in resizing the window.” *Id.* at 55 (citing Ex. 1003 ¶¶ 116–130, 184). Petitioner further asserts, “because the elements of the page displayed on the client node are resized differently (e.g., using different scale factors),

the web page as a whole is resized/transformed in a non-linear fashion.” *Id.* Petitioner further points to an embodiment in which information is obtained from two client nodes and code generation 213 applies a “‘non-linear function’ for ‘interpolative and/or extrapolative formulas’ that resize[s] the web page’s elements for display in business computer’s smaller-sized window/display based on the layout information/resizing constraints for the two nodes.” *Id.* at 55–56 (citing Ex. 1007, 7:53–8:50, 10:36–54; Ex. 1003 ¶¶ 116–130, 185) (emphasis omitted). Petitioner further points to an embodiment in which “code generation 213 applies ‘piece-wise linear resizing’ to the different elements of the web page in generating code for the resized web page for display in the smaller-sized window/display of the business computer,” and asserts that “[b]ecause a ‘piece-wise linear resizing’ is applied in resizing elements of the page, a POSITA would have understood, or found obvious, that each page element is resized using a particular linear scale factor, and the linear scale factor used for one element may differ from the scale used in resizing another element.” *Id.* at 56 (citing Ex. 1007, Abstr., 4:4–15, 6:21–32, 9:4–10; Ex. 1003 ¶¶ 116–30, 186) (emphasis omitted).

Patent Owner argues that Petitioner has mischaracterized the teachings of Smith with respect to claims 2, 7, and 11. Patent Owner argues that in Smith, the “relative position information refers to the location of one user interface element in a layout with respect to other user interface elements, e.g., the menu is always above (or below) an image.” Resp. 53–54 (citing Ex. 1007, 6:3–12; Ex. 2011 ¶ 199). Patent Owner argues that

Smith’s relative position information does not relate to the cursor’s position, and the resizing would not accurately replay user interactions relative to the positions of the visual interface elements. *Id.* at 54–60 (citing Ex. 2011 ¶¶ 197–217). Mr. Schmandt states that relative position information is not used when the second (e.g., smaller) display window corresponds exactly to a developer-defined constraint image. Ex. 2011 ¶¶ 203–204. Mr. Schmandt further states that relative position information is only used when the interpolation/extrapolation function of Smith is used. *Id.* ¶ 208. Mr. Schmandt opines that Smith’s interpolation/extrapolation function does not account for user activity, such as the location of the cursor, and therefore would result in a position of the cursor that is on a different part of the user interface than actually occurred. *Id.* ¶¶ 208–213.

As explained *supra*, we determine that claim 2 does not require relative positioning of the user visit activity. *See supra* § II.A.4.b. For the reasons discussed *supra*, we agree with Petitioner that Smith’s relative positioning of user interface pane elements, used in resizing to compensate for differences between the representation of those elements on different displays, teaches or suggests “wherein compensating for the differences is responsive to the relative locations of *visual elements of the web page*.” Ex. 1001, 17:36–38 (emphasis added).

Patent Owner does not challenge Petitioner’s showing with respect to claims 3 and 12. We adopt and incorporate Petitioner’s showing with respect to claims 2, 3, 7, 11, and 12 as persuasive. *See* Pet. 53–54, 62, 68–69. Consequently, we determine that Petitioner has shown, by a

preponderance of the evidence, that the Koeppel-Hentzel-Smith combination teaches claims 2, 3, 7, 11, and 12.

7. Claims 5, 9, and 14

Petitioner asserts that the combination of Koeppel, Hentzel, and Smith teaches or suggests all of the limitations recited in claims 5, 9, and 14.

Petitioner describes the combination as “when playing back the user session, [Hentzel’s] tracking server 40 receives the web page content information by downloading the web page content information from an information source (e.g., [Hentzel’s] recording database 80) that differs from an information source (e.g., [Koeppel’s] Web server 110) that provided the web page content information during the user’s visit to the web page.” Pet. 58 (citing Ex. 1003 ¶¶ 190–194; Ex. 1005 ¶¶ 37–41, 56–57; Ex. 1006, 9:1–65, 10:23–41, 13:60–14:1). Petitioner further points to Hentzel’s description that “the recording database 80 may be stored ... remotely [from the tracking server 40] at other computers in a networked computing environment.” *Id.* at 59 (citing Ex. 1006, 9:1–5; Ex. 1003 ¶¶ 190–194) (alteration in original).

Patent Owner argues that Hentzel’s tracking server is the same information source that provides the webpage information to both the user at the consumer computer and to the tracking element at the business computer, rather than the different sources required by claim 5. Resp. 62, 65. Patent Owner argues that Hentzel’s tracking server downloads webpage content from a web server, but that the tracking server provides that content to both the consumer and business computer. *Id.* at 61–63 (citing Ex. 1006, 9:47–48, 11:40–12:20; Ex. 2011 ¶ 220). Patent Owner argues that Hentzel’s

business computer obtains webpage information stored on the tracking server, and that Hentzel's consumer computer provides the consumer computer with the stored web page information through a redirect from the web server. *Id.* at 61–62 (citing Ex. 2011 ¶¶ 222–223; Ex. 1006, 11:45–49, Fig. 9). Patent Owner further argues that Hentzel does not describe or suggest that the tracking server stores the webpage information in a recording database such that (as asserted by Petitioner) the consumer computer receives the stored webpage from the consumer computer and the business computer receives the stored webpage from the tracking server. *Id.* at 63–64 (citing Ex. 1006, 8:48–61; Ex. 2011 ¶¶ 231–232; Pet. 58–59).

Petitioner replies by pointing out that the Petition did not rely solely on Hentzel for the different information sources, but on both Hentzel (tracking server 40 and recording database 80) and Koeppel (web server 110). Reply 26–27 (citing Pet. 58–59; Ex. 1003 ¶¶ 112–114, 149–153, 192). Petitioner argues that in its combination, the web server 110 provides the web page to the user, and the tracking server receives the web page from the recording database. *Id.* (relying on Dr. Cooperstock's statement that a person of ordinary skill in the art would have understood or found obvious that the web page would have been stored in a storage device such as the recording database).

Patent Owner argues that Hentzel contains a web server 32, and that Petitioner does not sufficiently explain why the combination would not use web server 32 as its web server, rather than Koeppel's web server 110. Sur-reply 24 (citing Ex. 1006, Fig. 1). Patent Owner argues that if the user

received the webpage directly from the web server, the combination would be inoperable because webpage would not contain the tracking script that can only be inserted by the tracking server. *Id.* at 25–26 (citing Resp. 61–63).

In analyzing the respective positions, we start with the claim language. Claim 1 recites “receiving, by the tracking element, web page content information representative of web page content displayed to the user during the visit.” Ex. 1001, 17:25–27. Claim 5 further limits that step as follows: “wherein receiving web page content information further comprises: downloading the web page content information from an information source that differs from an information source that provided to the user web page information during the visit of the user.” *Id.* at 17:48–53. Thus, claim 5 requires that the web page information received by the tracking element be from an information source that differs from the information source that provided the web page information to the user during the user’s visit.

In discussing the “receiving, by [a/the] tracking element” steps of limitations [1a] and [1b], Petitioner has provided two alternate teachings for the tracking server: Koeppel’s web server 110 and Hentzel’s tracking server 40. Petitioner’s combination is the modification of Koeppel’s system to “include at least the components of Hentzel’s tracking server (e.g., as part of either web server [110] or a separate tracking server 40).” Pet. 26, 36 (citing Ex. 1003 ¶¶ 111–113, 136). As discussed *supra*, we determine that Petitioner has shown, by a preponderance of the evidence, that the proposed

combination for limitations [1a] and [1b] teaches each limitation and that a person of ordinary skill in the art would have had a reason to combine the references in that manner. *Supra* §§ II.A.4.a, II.A.4.c.1.

Thus, we do not agree with Patent Owner's argument that Hentzel would not reasonably be modified to use Koeppel's web server 110 rather than Hentzel's own web server 32, because Petitioner modifies Koeppel to include components from Hentzel. Further, because Petitioner modifies Koeppel's web server 110 to include tracking server components, we do not agree with Patent Owner's argument that the combination would be inoperable if Koeppel's web server provides the information, because Koeppel's web server lacks tracking components. Consequently, we determine that Petitioner has shown, by a preponderance of the evidence, that the Koeppel-Hentzel-Smith combination teaches claims 5, 9, and 14.

8. *Patent Owner's Argument of Inconsistent Interpretations*

Patent Owner argues that Petitioner's analysis is internally inconsistent because Petitioner applies the same combination to teach the "same information source" limitation of claims 4, 8, and 13 and the "different information source" limitation of claims 5, 9, and 14. Resp. 64–65. Patent Owner argues that Petitioner cannot rely on Hentzel for both teachings. *Id.* Patent Owner argues, "Petitioner is proposing two different system modifications in the same purported combination to address different claim[] sets, without any particular motivation or consistency." Sur-reply 26.

Petitioner counters by arguing that it is not relying on Hentzel, but on combinations of Koeppel and Hentzel for teaching these claim limitations. Reply 25. For claim 4, Petitioner relies on the tracking server downloading information from the same information source (Koeppel's web server 110) that provided web page content information to the user. *Id.* (citing Pet. 57, 63, 69; Ex. 1006, 9:5–65; Ex. 1005 ¶¶ 37–41, 56–57; Ex. 1003 ¶¶ 188–189). For claim 5, Petitioner relies on the tracking server downloading information from a recording database, and the user downloading information from web server 110 (having Hentzel's tracking components). *Id.* at 26 (citing Pet. 58, 63, 69; Ex. 1003 ¶¶ 190–194; Ex. 1005 ¶¶ 37–41, 56–57; Ex. 1006, 9:1–65, 10:23–41, 13:60–14:1).

We do not agree with Patent Owner's argument. Petitioner proposed two alternative modifications of Koeppel, with one teaching the limitations of claim 4, and the other teaching the limitations of claim 5. We have determined these teachings to be supported by the record, and that a person of ordinary skill in the art would have had reason to make either combination. *Supra* §§ II.A.4.a, II.A.4.c.1. Consequently, we do not agree that Petitioner's use of alternative combinations for different dependent claims creates any inconsistency in its treatment of independent claim 1, or detracts from its showing of obviousness of either dependent claim.

9. *Determination*

In light of the foregoing, we determine that, for purposes of this Decision, Petitioner has shown sufficiently that the combination of Koeppel, Hentzel, and Smith teaches or suggests all of the limitations recited in

claims 1–22, and Petitioner has articulated an adequate reason to combine the prior art teachings with a reasonable expectation of success. As such, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–22 would have been obvious over Koeppel, Hentzel, and Smith.

E. Asserted Obviousness of Claims 1–22 over Koeppel, Hentzel, Smith, and Montero

Petitioner asserts that claims 1–22 are unpatentable under § 103(a) as obvious over Koeppel, Hentzel, Smith, and Montero. Pet. 72–76. Patent Owner provides the same arguments against this ground as provided for the Koeppel-Hentzel-Smith ground. Resp. 66.

1. Overview of Montero (Ex. 1010)

Montero is titled “Method of Delivering Information over a Communication Network.” Ex. 1010, code (54). Montero relates to providing a sequence of information to a subscriber in a manner that does not interfere with simultaneously displayed data from a data provider on a network. *Id.* at 3:11–22. The sequence of information includes, for example, advertisements, news, web pages, etc., which is supplied by INFO servers 120 and distributed to subscribers. *Id.* at 4:63–5:4. According to Montero, a subscriber’s monitor 180 may be divided into a browser window 190, INFO window 200, and navigation window 290. *Id.* at 8:27–30, 8:49–51. The INFO window includes linked regions 201, where subscriber selections or clicks are tracked to determine the subscriber’s interests. *Id.* at 9:50–53, 13:16–26. Montero explains that, once a linked

region has been selected by a subscriber, a “clicked event report packet” is generated and transmitted to an ISP server 110. *Id.* at 13:30–33. This clicked event report packet may be compressed before being transmitted to the ISP server and stored in a database; or alternatively, the packet is forwarded by the ISP server to a clicked event server 250, which decompresses the received packet and generates a “clicked event record.” *Id.* at 13:48–57.

2. *Analysis*

Petitioner asserts that the combination of Koeppel, Hentzel, Smith, and Montero teaches or renders obvious all of the limitations recited in claim 1 for the same reasons as discussed for the combination of Koeppel, Hentzel, and Smith, with the exception of element [1c]. Pet. 72–76. Upon review of Petitioner’s argument and supporting evidence for the Koeppel-Hentzel-Smith-Montero combination, we agree with Petitioner for purposes of this Decision.

Element [1c] recites “decompressing the compressed user activity information.” Ex. 1001, 17:28. Petitioner relies on Montero’s teaching of a “clicked event report packet” being compressed prior to transmission to a server and decompressed once received by another server. Pet. 76 (citing Ex. 1010, 13:30–65; Ex. 1003 ¶ 249). Petitioner, supported by Dr. Cooperstock, asserts that an ordinarily skilled artisan would have understood that the compressed data received by the server of Koeppel, Hentzel, and Smith would need to be decompressed to enable analysis and playback of the data. *Id.* at 74–75 (citing Ex. 1003 ¶¶ 245–247; Ex. 1010,

13:30–65). Petitioner additionally asserts that data decompression would have been a known technique “to improve similar devices in the same way [and] yield predictable results.” *Id.* at 76 (citing Ex. 1003 ¶ 248). Further, Patent Owner’s arguments with respect to this combination are unavailing for the same reasons discussed above with regard to the Koeppel-Hentzel-Smith ground. Upon review of the record, we agree with this assessment of the references, and we determine that Petitioner has shown, by a preponderance of the evidence, that these claims are taught by the Koeppel-Hentzel-Smith-Montero combination.

3. *Determination*

In light of the foregoing, we determine that, for purposes of this Decision, Petitioner has shown sufficiently that the combination of Koeppel, Hentzel, Smith, and Montero teaches or suggests all of the limitations recited in claims 1–22, and Petitioner has articulated an adequate reason to combine the prior art teachings with a reasonable expectation of success. As such, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–22 would have been obvious over Koeppel, Hentzel, Smith, and Montero.

III. CONCLUSION⁴

For the foregoing reasons, we determine Petitioner has established by a preponderance of the evidence the unpatentability of claims 1–22 of the '081 patent. In summary,

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–22	103(a)	Koeppel, Hentzel, Smith	1–22	
1–22	103(a)	Koeppel, Hentzel, Smith, Montero	1–22	
Overall Outcome			1–22	

IV. ORDER

For the foregoing reasons, it is:

ORDERED that Petitioner *has shown* based on a preponderance of evidence that claims 1–22 of U.S. Patent No. 9,508,081 B2 are unpatentable; and

⁴ 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).

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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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