

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

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

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IPR2021-00364  
Patent 10,063,645 B2

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

AMUNDSON, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining Some Challenged Claims Unpatentable

*35 U.S.C. § 318(a)*

Dismissing Petitioner's Motion to Exclude

*37 C.F.R. § 42.64*

## I. INTRODUCTION

Quantum Metric, Inc., Decibel Insight, Ltd., and Decibel Insight, Inc. (collectively “Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–24 in U.S. Patent No. 10,063,645 B2 (Exhibit 1001, “the ’645 patent”) under 35 U.S.C. §§ 311–319. Paper 3 (“Pet.”). Content Square Israel Ltd. (f/k/a Clicktale Ltd.) (“Patent Owner”) filed a Preliminary Response. Paper 11 (“Prelim. Resp.”).

In our Institution Decision, we instituted review based on all challenged claims and all grounds presented in the Petition. Paper 23 (“Inst. Dec.”). We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons explained below, Petitioner has shown by a preponderance of the evidence that claims 1–8, 14–18, and 24 are unpatentable but has not shown by a preponderance of the evidence that claims 9–13 and 19–23 are unpatentable. *See* 35 U.S.C. § 316(e) (2018).

## II. BACKGROUND

### *A. Procedural History*

After we instituted review, Patent Owner filed a Response (Paper 38, “Resp.”), Petitioner filed a Reply (Paper 45, “Reply”), and Patent Owner filed a Sur-reply (Paper 51, “Sur-reply”). On April 20, 2022, we held an oral hearing, and the record includes the hearing transcript. Paper 61 (“Tr.”).

### *B. Real Parties in Interest*

Petitioner identifies the following entities as the real parties in interest: Quantum Metric, Inc., Medallia Inc., Decibel Insight, Ltd., and Decibel Insight, Inc. Pet. 75–76; Paper 7, 2. Patent Owner identifies the

following entities as the real parties in interest: Content Square SAS and Content Square Israel Ltd. Paper 6, 1. The parties do not raise any issue about real parties in interest.

*C. Related Matters*

Petitioner and Patent Owner identify the following civil actions where Patent Owner has asserted the '645 patent against an alleged infringer:

*Content Square SAS et al. v. Quantum Metric, Inc.*, No. 1:20-cv-00832-LPS (D. Del. filed June 22, 2020); and *Content Square SAS et al. v. Decibel Insight, Ltd. et al.*, No. 1:20-cv-11184-FDS (D. Mass. filed June 22, 2020). Pet. 76; Paper 6, 2–3.

In addition, Patent Owner identifies pending application serial no. 16/102,122, filed on August 13, 2018, as a related matter. Paper 6, 2.

*D. The '645 Patent (Exhibit 1001)*

The '645 patent, titled “Method and System for Monitoring and Tracking Browsing Activity on Handled Devices,” issued on August 28, 2018, from an application filed on May 7, 2013. Ex. 1001, codes (22), (45), (54). The patent claims priority to a provisional application filed on May 10, 2012. *Id.* at 1:8–10, code (60).

The '645 patent states that the invention concerns “monitoring and tracking browsing activity of a user on a client device.” Ex. 1001, 2:42–44, 2:56–58, code (57). As background, the patent explains that a “web site is a collection of web pages” and that web pages “are typically stored on a server and remotely accessed by a client over the Internet using a web browser.” *Id.* at 1:17–20. The patent also explains that a “problem for web site owners is how to determine how successful the web site is, for example, whether the

informational or other needs of users are met and whether the users are purchasing goods and services advertised on their site.” *Id.* at 1:32–36.

According to the ’645 patent, conventional monitoring techniques “were primarily designed to be compatible with web browsers executed over personal computers and the like.” Ex. 1001, 2:6–9. But “handled devices,” e.g., mobile phones and tablet computers, “have increasingly become very popular,” and “[t]here are a number of differences in browsing activity” on “handled devices” compared to personal computers. *Id.* at 2:12–17.

Those differences in browsing activity on “handled devices” compared to personal computers may cause problems when monitoring that browsing activity, e.g., due to adapting a web page to “a smaller display area” that displays content differently. Ex. 1001, 2:21–25, 2:31–34. And due to those differences in browsing activity, “conventional client-side monitoring scripts cannot accurately monitor users’ interaction with web pages and mobile applications.” *Id.* at 2:32–35. Hence, the invention purports to “provide a solution that overcomes the deficiencies of conventional techniques for tracking and analyzing users’ browsing activity.” *Id.* at 2:36–38.

Figure 1 in the '645 patent (reproduced below) depicts equipment for tracking and analyzing users' browsing activity:

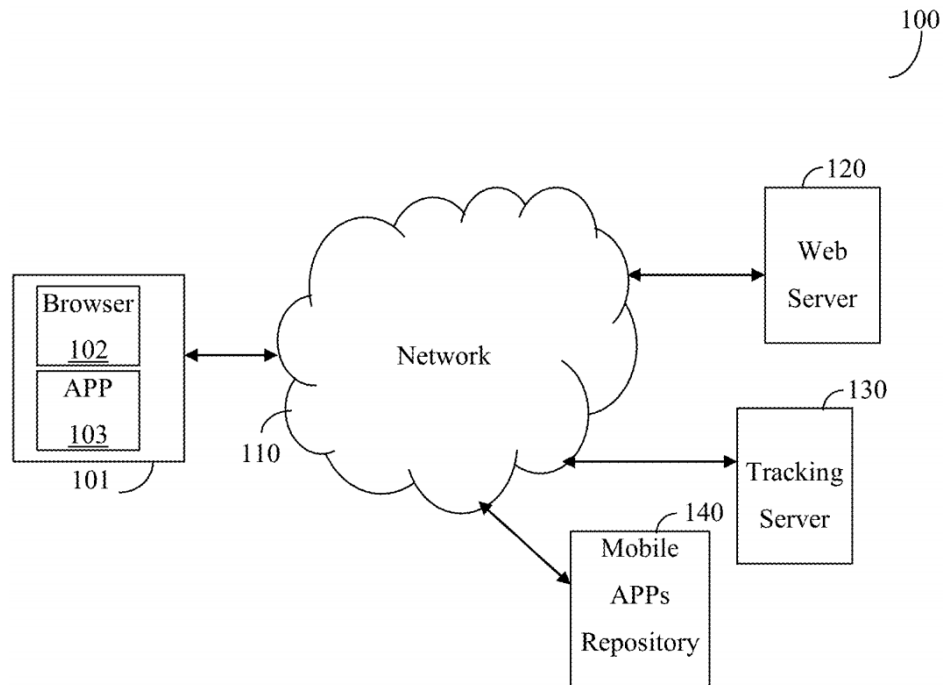


FIG. 1

Figure 1 illustrates system 100 with the following components connected to network 110: client device 101, web server 120, tracking server 130, and central repository 140. Ex. 1001, 3:13–14, 3:38–43, 4:26–29, Fig. 1. Client device 101 includes browser 102 and mobile application 103. *Id.* at 4:1–5. Through browser 102, client device 101 accesses a website hosted by web server 120. *Id.* at 4:1–2. Tracking server 130 “processes and analyzes user activity information collected by a tracking code” in client device 101. *Id.* at 3:43–45; *see id.* at 7:15–20, Fig. 3. Central repository 140 includes mobile applications that client device 101 may download. *Id.* at 4:26–29.

More specifically, tracking server 130 receives two types of information: (1) “user activity information representative of activities performed by the user during a visit to a web page”; and (2) “web page

content information representative of the web page content displayed to the user during the visit.” Ex. 1001, 3:55–60; *see id.* at 4:57–5:4, 7:20–23, Fig. 3. With the received information, tracking server 130 may generate an “exposure map or report showing areas in a web page, downloaded from the web server 120, with which a user of the client device 101 most interacted and/or viewed.” *Id.* at 3:46–49; *see id.* at 3:61–65, 4:5–9, 7:30–37, 9:28–30, Fig. 3. The “exposure map may be graphically presented as a heat map.” *Id.* at 3:49–51; *see id.* at 7:37–38, 9:31–32.

A tracking code in client device 101 collects user activity information “through a recording process.” Ex. 1001, 4:30–32. The tracking code “may be realized as a script,” e.g., a JavaScript program “embedded in a web page.” *Id.* at 4:32–34.

The ’645 patent describes a “visit of a web page” as a “pageview.” Ex. 1001, 6:11–12. The patent describes a single user’s interaction with a web page during a single browsing session as a “pageview session.” *Id.* at 4:54–56; *see id.* at 5:25–26. A rendering engine or browser, e.g., on a client device, may render a web page to produce a layout representing the web page. *Id.* at 8:19–22, 8:28–32, 8:35–39; *see id.* at 4:14–16, 5:35–36. The patent describes a “layout displayed over the browser” on a client device as a “pageview layout.” *Id.* at 8:47–48.

The ’645 patent explains that the tracking code collects two data sets during a pageview session: (1) the “pan/zoom data set” that “relates to pan/zoom operations” of a client device; and (2) the “element data set” that “relates to elements of the web page.” Ex. 1001, 5:20–29; *see id.* at 6:50–56.

The pan/zoom data set preferably includes the following information:

- (1) “the size of the web page downloaded to” the client device;
- (2) “the size of a visible area on” the client device “at any given moment,” i.e., the “viewport”;
- (3) “the position of each viewport (e.g., position of scroll bars)”;
- (4) “a time period for which each viewport was active”; and
- (5) “a layout in which the browser” on the client device “attempted to render the web page.”

Ex. 1001, 5:30–36. “Using the pan/zoom data set, a rectangular area that was visible on the client device” at “every given moment can be determined.” *Id.* at 5:36–38; *see id.* at 6:61–64.

The element data set preferably includes “position information about one or more elements in the web page,” such as “a subset of elements that are in the center of a web page or center of a viewport.” Ex. 1001, 5:63–67. An element may correspond to “a paragraph of text, a link, an image, a button, or any document object module (DOM) element of the web page.” *Id.* at 6:1–4.

The ’645 patent explains that an “exposure map or report show[s] areas in a web page” that a user of a client device “most interacted and/or viewed.” Ex. 1001, 3:46–49. User interactions with a web page include keyboard events and mouse events, e.g., click events. *Id.* at 5:39–45; *see id.* at 1:52–56.

Figure 3 in the '645 patent (reproduced below) illustrates a flowchart for generating different types of exposure maps:

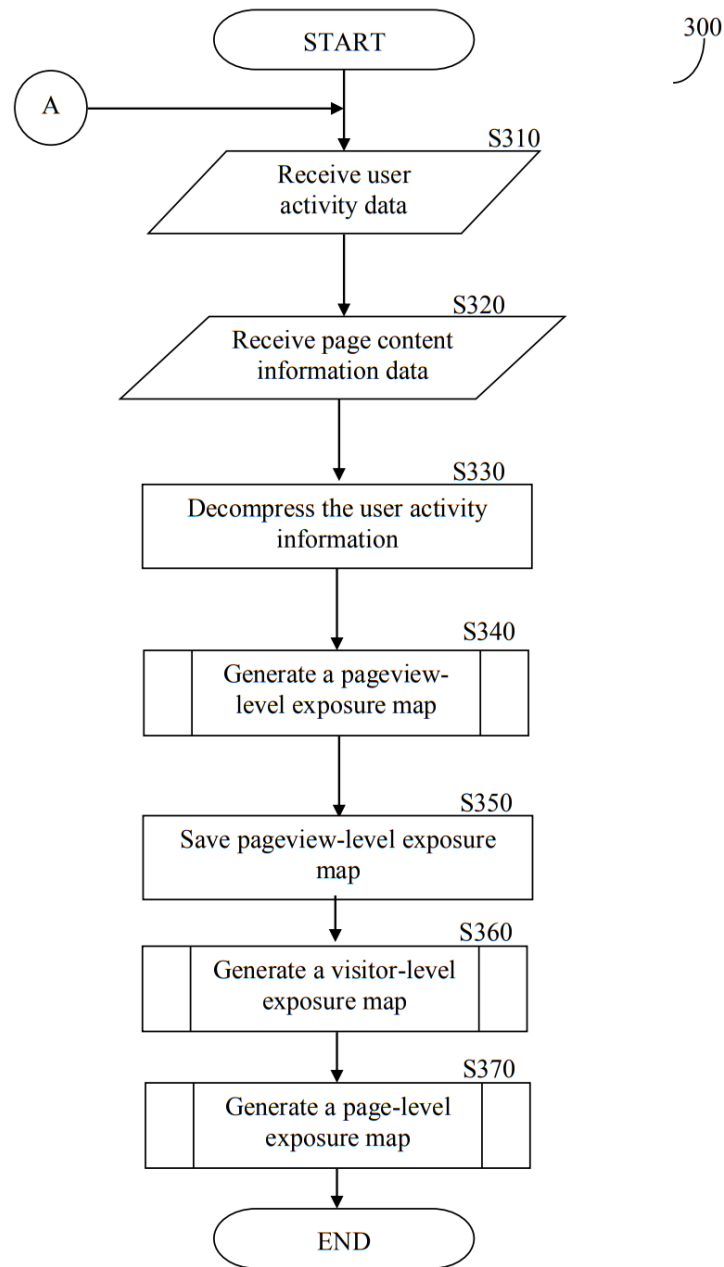


FIG. 3

Figure 3 shows a flowchart with steps S310 through S370 for generating (1) a “pageview-level exposure map,” (2) a “visitor-level exposure map,” and (3) a “page-level exposure map.” Ex. 1001, 3:18–19, 7:16–67, Fig. 3. A tracking server performs the steps. *Id.* at 7:19.

At step S310, the tracking server receives “user activity information” representative of “activities performed by the user of the client device” during “a pageview session.” Ex. 1001, 7:20–23, Fig. 3. At step S320, the tracking server optionally receives “web page content information” representative of “web page content displayed to the user during the visit.” *Id.* at 7:23–28, Fig. 3. At step S330, the tracking server optionally decompresses the information (if compressed). *Id.* at 7:29–30, Fig. 3.

At step S340, the tracking server generates a “pageview-level exposure map” in response to “user activity information.” Ex. 1001, 7:30–34, Fig. 3; *see id.* at 7:36–37. A pageview-level exposure map results from “processing the received user activity data” and indicates “the salience of the content in the pageview visited by” the user of the client device. *Id.* at 7:30–32, 8:1–5, Fig. 4; *see id.* at 4:51–56. At step S350, the tracking server saves the pageview-level exposure map in a storage device. *Id.* at 7:45–47.

At step S360, the tracking server generates a “visitor-level exposure map” by aggregating pageview-level exposure maps for the user of the client device. Ex. 1001, 7:48–51, 9:38–41, Fig. 3. A visitor-level exposure map may represent any of the following: (1) “the time the user interacted and viewed any area in any visited web page”; (2) “whether the user viewed a certain page area”; and (3) “in how many pageviews a specific user viewed.” *Id.* at 7:51–55.

At step S370, the tracking server generates a “page-level exposure map” by aggregating “a plurality of visitor-level exposure maps generated for a plurality of users.” Ex. 1001, 7:56–58, 9:42–44, Fig. 3. A page-level exposure map may represent any of the following: (1) “how much time a specific area in the pageview was visible by different users”; (2) “if a

specific area in the pageview was visible to all users or some of the users”; (3) “in how many pageviews was an area visible”; and (4) “how many users viewed a specific area in a pageview.” *Id.* at 7:58–62.

In one embodiment, a pageview-level exposure map “is rendered as a two-dimensional heat map.” Ex. 1001, 7:36–38; *see id.* at 3:49–51. “The visitor-level exposure map and page-level exposure map can also be rendered as a two-dimensional heat map.” *Id.* at 7:64–66.

In one embodiment, an exposure map “is a two-dimensional map of exposure time values, with each such value indicating the time a specific area was visible or ‘exposed’.” Ex. 1001, 9:28–30. In one embodiment, “all mapped viewport instances are aggregated,” and “the delta time spans of all viewport instances respective of the mapped viewports are computed as a weighted sum” to “determine the salience of the visible area.” *Id.* at 9:8–17. In one embodiment, “the weight can be assigned according to the viewport zoom level.” *Id.* at 9:17–19.

Figure 4 in the '645 patent (reproduced below) illustrates a flowchart for generating a pageview-level exposure map:

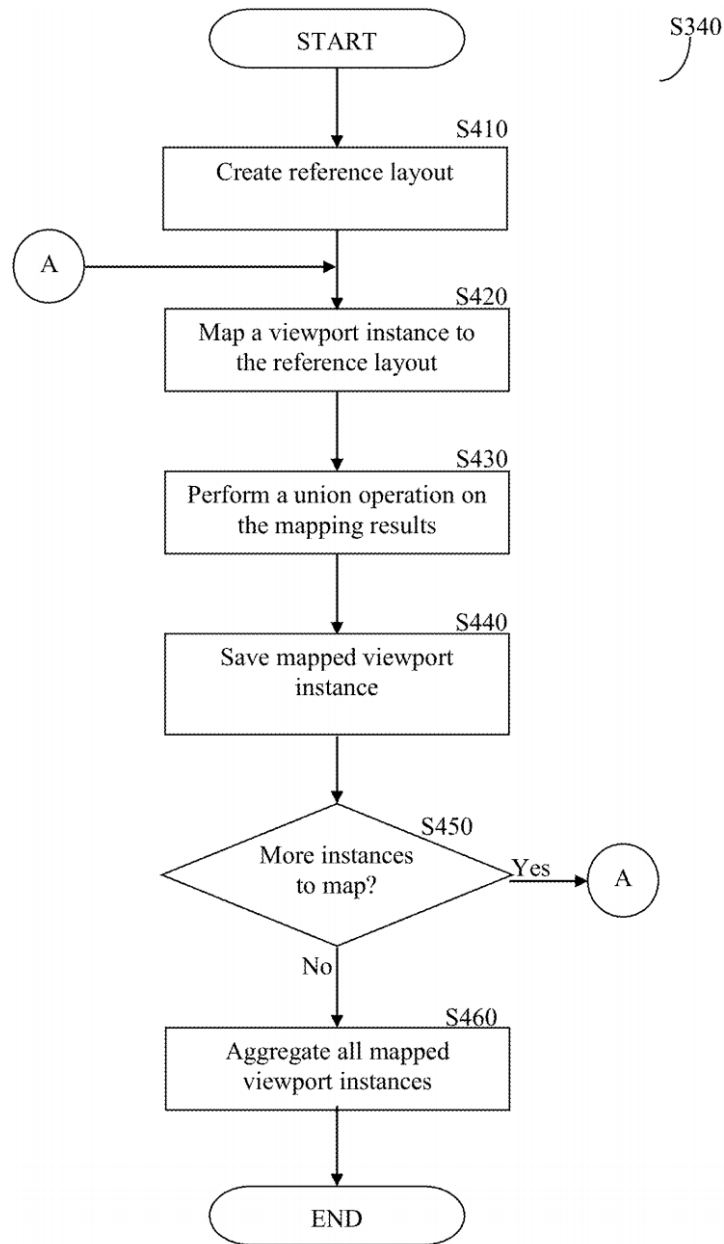


Figure 4 shows a flowchart with steps S410 through S460 for generating a pageview-level exposure map by aggregating the viewport instances from a pageview session. Ex. 1001, 3:20–22, 8:1–9, 9:8–9; *see id.* at 7:30–37, Fig. 3 (step 340).

The '645 patent explains that different client devices “display the same web page differently, because of different types of display, browsers, operating systems, and so on.” Ex. 1001, 8:12–17. Because different client devices display the same web page differently, each pageview on a client device “may be characterized with a layout being different from the layout of the web page (hereinafter the ‘reference layout’).” *Id.* at 8:14–19. The patent discloses a way to (1) compensate for different client devices displaying the same web page differently and (2) “provide an accurate exposure map.” *Id.* at 8:9–12, 8:22–23.

In particular, the '645 patent explains that “the aggregation of viewport instances should be performed invariant to the layout of the pageviews as displayed on” different client devices by mapping the aggregation of viewport instances “to overlay the reference layout.” Ex. 1001, 8:22–27. The patent similarly explains that the aggregation of viewport instances may be overlaid on “another pageview of the web page corresponding to the pageview aggregated.” *Id.* at 8:2–9.

The '645 patent discloses several ways to obtain a reference layout. Ex. 1001, 8:28–46, Fig. 4. First, a tracking server may create a reference layout by rendering a “web page corresponding to the pageview and inspecting the location of each element in the rendered web page.” *Id.* at 8:28–32. If a tracking server creates a reference layout by rendering a web page, the “web page corresponding to the pageview is determined based on the web page content information collected by the tracking code (e.g., the URL of the web-page viewed by the user).” *Id.* at 8:32–35. Second, “a device of the user who receives the exposure map” may create a reference layout by rendering a web page. *Id.* at 8:35–38; *see id.* at 8:39–42. If a user

device creates a reference layout by rendering a web page, “the layout of such web page is sent to the tracking server” for report generation. *Id.* at 8:38–39; *see id.* at 8:42–44. Third, “the reference layout may be received from an external source.” *Id.* at 8:45–46.

### *E. The Challenged Claims*

Petitioner challenges independent method claim 1, claims 2–15 that depend directly or indirectly from claim 1, independent system claim 16, and claims 17–24 that depend directly or indirectly from claim 16. Pet. 2, 7–69. Claims 1 and 16 exemplify the challenged claims and read as follows (with formatting added for clarity and with numbers and letters added for reference purposes)<sup>1</sup>:

1. [1pre] A method for monitoring and tracking browsing activity of a user on a client device, comprising:

[1a] receiving, from the client device, browsing activity information of the user interacting with at least one page displayed on the client device, wherein the client device is a handheld device having a touch screen display;

[1b] receiving, from the client device, page information identifying in part the at least one page displayed on the client device;

[1c] creating a reference layout of the at least one page displayed on the client device; and

[1d] generating, based on the browsing activity information and the page information, an exposure map at a page view level,

wherein the exposure map indicates a salience of each area of a page-view of [sic] based on the page displayed on the client device and visited by the user,

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<sup>1</sup> We use the same numbers and letters that Petitioner uses to identify the claim limitations.

wherein the page-view is characterized by a page-view layout mapped to overlay the reference layout,

wherein the page-view layout includes at least one visible area of the displayed page, and

wherein each area of a page-view is less than the entirety of the page.

16. [16pre] A system for monitoring and tracking browsing activity of a user on a client device, comprising:

[16a] a network interface for receiving, from the client device connected to a network, browsing activity information of the user interacting with at least one page displayed on the client device and page information identifying in part the at least one page displayed on the client device;

[16b] a processor; and

[16c] a memory coupled to the processor and configured to store instructions for causing the processor to perform a process for creating a reference layout of the at least one page displayed on the client device; and

[16d] for generating, based on the browsing activity information and the page information, an exposure map at a page-view-level,

wherein the exposure map indicates a salience of each area of a page-view based on the at least one page displayed on the client device and visited by the user,

wherein the page-view is characterized by a page-view layout mapped to overlay the reference layout,

wherein the page-view layout includes at least one visible area of the displayed page, and

wherein each area of a page-view is less than the entirety of the page.

Ex. 1001, 10:56–11:11, 12:21–43.

*F. The Asserted References*

For its challenges, Petitioner relies on the following references:

| Name      | Reference                                                                                 | Exhibit |
|-----------|-------------------------------------------------------------------------------------------|---------|
| Phillips  | US 8,379,053 B1, issued February 19, 2013<br>(from an application filed January 24, 2012) | 1005    |
| Zambonini | WO 2007/113573 A2, published October 11, 2007                                             | 1006    |

Petitioner asserts that Phillips qualifies as prior art under § 102(e) based on the application filing date and that Zambonini qualifies as prior art under § 102(b).<sup>2</sup> Pet. 2; *see* 35 U.S.C. § 102(b), (e) (2006). Patent Owner does not dispute that each reference qualifies as prior art. *See, e.g.*, Resp. 18–26.

*G. The Asserted Challenges to Patentability*

Petitioner asserts the following challenges to patentability:

| Claim(s) Challenged | 35 U.S.C. § | Reference(s)/Basis  |
|---------------------|-------------|---------------------|
| 1–24                | 103(a)      | Phillips, Zambonini |

Pet. 2, 7–69.

*H. Testimonial Evidence*

To support its challenges, Petitioner relies on the following declarations: (1) Declaration of Dr. Jeremy Cooperstock (Exhibit 1003, “Cooperstock 1st Decl.”); (2) Corrected and Supplemental Declaration of

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<sup>2</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 102 and § 103 effective March 16, 2013. Because the ’645 patent claims priority to a provisional application filed before March 16, 2013, and because Petitioner does not dispute that the challenged claims are entitled to the priority of the provisional application, this decision refers to the pre-AIA versions of § 102 and § 103. *See* AIA § 3(n)(1) (effective date).

Dr. Jeremy Cooperstock (Exhibit 1041, “Cooperstock 2nd Decl.”); and (3) Third Declaration of Dr. Jeremy Cooperstock (Exhibit 1043, “Cooperstock 3rd Decl.”). Dr. Cooperstock states that “I have been retained on behalf of Quantum Metric Incorporated (‘QMI’) and Decibel Insight Limited (‘Decibel’) to offer technical opinions relating to” the ’645 patent and “prior art references relating to its subject matter.” Ex. 1003 ¶ 8. Dr. Cooperstock explains that his qualifications include (1) a “B.Sc. in Electrical Engineering from the University of British Columbia,” (2) a “M.Sc. in Computer Science from the University of Toronto in 1992,” and (3) a “Ph.D. in Electrical and Computer Engineering from the University of Toronto in 1996.” *Id.* ¶ 3.

To support its positions, Patent Owner relies on the Declaration of Christopher Schmandt in Support of Patent Owner’s Response (Exhibit 2007, “Schmandt Decl.”). Mr. Schmandt states that “I submit this Declaration” to “provide my expert opinion in support of Patent Owner’s Response to Petitioner’s Petition.” Ex. 2007 ¶ 2. Mr. Schmandt explains that his qualifications include (1) a “Bachelor of Science degree in Computer Science from M.I.T. in 1978,” (2) a “Masters of Science from M.I.T. in Visual Studies (Computer Graphics) in 1980,” and (3) “over 40 years of industry experience in the field of Media Technology.” *Id.* ¶¶ 4–5, 25.

Additionally, Petitioner submits deposition testimony from Mr. Schmandt, and Patent Owner submits deposition testimony from Dr. Cooperstock. *See* Ex. 1044 (Jan. 25, 2022, Schmandt Dep. Tr.); Ex. 2008 (Oct. 12, 2021, Cooperstock Dep. Tr.); Ex. 2009 (Oct. 13, 2021, Cooperstock Dep. Tr.); Ex. 2012 (Mar. 9, 2022, Cooperstock Dep. Tr.).

### *I. Burden*

In an *inter partes* review, a petitioner bears the burden of persuasion to prove “unpatentability by a preponderance of the evidence.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (quoting 35 U.S.C. § 316(e)); *see* 37 C.F.R. § 42.1(d) (2021).

## III. PATENTABILITY ANALYSIS

### *A. Legal Principles: Obviousness*

A patent may not be obtained “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a) (2006). An obviousness analysis involves underlying factual inquiries including (1) the scope and content of the prior art; (2) differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) where in evidence, objective indicia of nonobviousness, such as commercial success, long-felt but unsolved needs, and failure of others.<sup>3</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18, 35–36 (1966); *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1047–48 (Fed. Cir. 2016) (en banc). When evaluating a combination of references, an obviousness analysis should address “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

We analyze the obviousness issues according to these principles.

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<sup>3</sup> The record does not include evidence or arguments regarding objective indicia of nonobviousness.

*B. Level of Ordinary Skill in the Art*

Factors pertinent to determining the level of ordinary skill in the art include (1) the educational level of the inventor; (2) the type of problems encountered in the art; (3) prior-art solutions to those problems; (4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of workers active in the field. *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983). Not all factors may exist in every case, and one or more of these or other factors may predominate in a particular case. *Id.* These factors are not exhaustive, but merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). Moreover, the prior art itself may reflect an appropriate skill level. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Dr. Cooperstock testifies that a person of ordinary skill in the art would have had “a Bachelor of Science or Engineering degree in Computer Science, Computer Engineering, or another academic discipline emphasizing the design or development of web-related technologies, in combination with training or at least one to two years of related work experience with web-related technologies.” Ex. 1003 ¶ 15. Further, Dr. Cooperstock testifies that “the person could have also had a Master of Science degree in a relevant academic discipline with less than a year of related work experience in the same discipline.” *Id.*

Mr. Schmandt testifies that a person of ordinary skill in the art would have had “a Bachelor of Science (or equivalent degree) in Computer Science or Computer Engineering, in combination with at least two years of

additional experience with technologies related to media or web-based technology, or equivalent work experience.” Ex. 2007 ¶ 25.

The descriptions of an ordinarily skilled artisan articulated by Dr. Cooperstock and Mr. Schmandt differ mainly in the experience level, i.e., “at least one to two years of related work experience” according to Dr. Cooperstock and “at least two years of additional experience” according to Mr. Schmandt. Ex. 1003 ¶ 15; Ex. 2007 ¶ 25.

We adopt Dr. Cooperstock’s description of an ordinarily skilled artisan because it comports with the technology and claims in the ’645 patent as well as the asserted references. If the prior art renders the claimed subject matter obvious to a person with less experience and less knowledge, then the prior art renders the claimed subject matter obvious to a person with more experience and more knowledge. *See Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1369 (Fed. Cir. 2011). We note that our analysis would not change if we adopted Mr. Schmandt’s description of an ordinarily skilled artisan.

### *C. Claim Construction*

#### 1. GENERALLY

We construe claim terms “using the same claim construction standard” that district courts use to construe claim terms in civil actions under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b). Under that standard, claim terms “are given their ordinary and customary meaning, which is the meaning the term would have to a person of ordinary skill in the art at the time of the invention.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 971 (Fed. Cir. 2018) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc)). The meaning of claim

terms may be determined by “look[ing] 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 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner contends that “no formal claim constructions are necessary in this proceeding.” Pet. 2–3. Patent Owner proposes that we construe three terms included in claims 1 and 16 and certain dependent claims, i.e., “salience,” “page-view,” and “page-view layout.” Resp. 16–18. To decide the patentability issues for claims 1–24, however, we need to address the meaning of only one term, i.e., “salience.”

## 2. “SALIENCE”

Claims 1, 11, 16, and 21 include the term “salience.” In particular, claims 1 and 16 require “generating, based on the browsing activity information and the page information, an exposure map at a page view level, wherein the exposure map indicates a salience of each area of a page-view” based on the “page displayed on the client device and visited by the user.” Ex. 1001, 11:1–6, 12:33–38. Claims 11 and 21 depend indirectly from claims 1 and 16, respectively, and require determining “the salience of the page-view by computing delta timespans of all viewports based on the plurality of mapped viewports as a weighted sum.” *Id.* at 11:63–65, 13:8–10.

Patent Owner proposes that we construe “salience” to mean “a graphical indication of the timespan of exposure of a webpage area,” but only for “the purpose of this *inter partes* review.” Resp. 17; *see id.* at 39; Sur-reply 6. To support its proposed construction, Patent Owner contends

that the '645 patent “teaches that, ‘[a]t S340, at least a pageview-level exposure map indicating the salience of the content in the pageview visited by the user of the client 101 is generated.’” Resp. 17 (alteration by Patent Owner) (quoting Ex. 1001, 7:30–33). Patent Owner contends that the '645 patent “further explains that, ‘to determine the salience of the visible area, the delta time spans of all viewport instances respective of the mapped viewports are computed . . . .’” *Id.* (alteration by Patent Owner) (quoting Ex. 1001, 9:14–17).

Petitioner contends that Patent Owner’s proposed construction of “salience” makes some language in claims 1 and 16 redundant. *See* Reply 3–4, 6. Specifically, Petitioner notes that claims 1 and 16 require that “the exposure map indicates a salience of each area of a page-view” based on the “page displayed on the client device and visited by the user.” *Id.* at 3 (emphasis omitted) (quoting Ex. 1001, 11:3–5, 12:36–38). Petitioner asserts that the phrase “a graphical indication” in Patent Owner’s proposed construction is redundant to the term “exposure map” already recited in the claims because an “exposure map” is “itself an indication.” *Id.* at 4, 6 (citing Ex. 1044, 122:5–16). Petitioner further asserts that the phrase “of a webpage area” in Patent Owner’s proposed construction is redundant to the phrase “each area of a page-view” already recited in the claims. *Id.* at 6. Petitioner also asserts that the '645 patent’s disclosure that “to determine the salience of the visible area, the delta time spans of all viewport instances respective of the mapped viewports are computed,” demonstrates that Patent Owner “could have drafted the claims to include narrower language, if desired.” *Id.* at 4 (quoting Ex. 1001, 9:14–17).

Petitioner also contends that Patent Owner’s proposed construction of “salience” conflicts with the ’645 patent’s disclosure because the disclosure describes “salience” as “a computation” rather than “a graphical indication” according to Patent Owner’s proposed construction. Reply 6; *see id.* at 3. Further, Petitioner asserts that the ’645 patent does not “clearly set forth a definition” of “salience” for Patent Owner “to have acted as its own lexicographer.” *Id.* at 5 (citing *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)).

Patent Owner responds by asserting that Petitioner “does not challenge (and in fact expressly acknowledges), that salience in the context of the ’645 Patent relates to a timespan of exposure.” Sur-reply 6 (citing Reply 6).

Based on the intrinsic evidence and for the reasons explained below, we construe “salience” to mean “user interaction or activity.” Hence, according to claims 1 and 16, “the exposure map indicates a salience of each area of a page-view” by showing “user interaction or activity” for each area.

First, the claim language supports the conclusion that “salience” means “user interaction or activity.” In particular, claims 1 and 16 require generating an exposure map based on “browsing activity information” and “page information.” Ex. 1001, 11:1–3, 12:33–35. Further, the claims specify that “browsing activity information” relates to “the user interacting with at least one page displayed on the client device.” *Id.* at 10:58–60, 12:24–26. The generated exposure map should reflect the input information, e.g., “the user interacting with” an area on a page.

Also, for the reasons stated by Petitioner, we agree with Petitioner that Patent Owner’s proposed construction of “salience” makes some language in

claims 1 and 16 redundant. *See* Reply 3–4, 6. A construction that “gives meaning to all” claim language “is preferred over one that does not do so.” *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005).

Additionally, “the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Phillips*, 415 F.3d at 1314–15. Further, “if a dependent claim reads on a particular embodiment of the claimed invention, the corresponding independent claim must cover that embodiment as well” because “an independent claim is broader than a claim that depends from it.” *Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th 1376, 1380 (Fed. Cir. 2022). Here, the dependent claims indicate that “salience” in the independent claims does not necessarily require a timespan of exposure.

Specifically, claims 3 and 18 depend directly from claims 1 and 16, respectively, and specify that “browsing activity information” includes “a pan/zoom data set.” Ex. 1001, 11:17–18, 12:47–48. Claim 4 depends directly from claim 3 and specifies that claim 3’s “pan/zoom dataset” includes any of the following: “a size of the page, a size of each viewport, a position of each viewport, a time period for which each viewport was active, and a layout in which a rendering engine renders the at least one page on the client device.” *Id.* at 11:27–31. Thus, claim 4 depends indirectly from claim 1 to modify claim 1’s “browsing activity information.”

Claim 4’s option to include “a time period for which each viewport was active” in claim 1’s “browsing activity information” corresponds to a timespan of exposure. Claim 4’s option to include “a time period for which each viewport was active” in claim 1’s “browsing activity information”

would become meaningless if “salience” in claim 1 necessarily required a timespan of exposure. As noted above, a construction that “gives meaning to all” claim language “is preferred over one that does not do so.” *Merck*, 395 F.3d at 1372. Patent Owner identifies nothing in the intrinsic evidence warranting a departure from that general principle. *See* Resp. 16–17; Sur-reply 6–7. Additionally, as explained below, the ’645 patent’s specification indicates that “salience” in the independent claims does not necessarily require a timespan of exposure.

No claim like claim 4 depends indirectly from claim 16 to modify claim 16’s “browsing activity information” like claim 4 modifies claim 1’s “browsing activity information.” *See* Ex. 1001, 12:44–13:29. But “the same terms appearing in different claims in the same patent . . . should have the same meaning ‘unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims.’” *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1328 (Fed. Cir. 2006) (quoting *Fin Control Sys. Pty, Ltd. v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001)). Patent Owner identifies nothing in the intrinsic evidence suggesting that the same term appearing in claims 1 and 16 should have different meanings. *See* Resp. 16–17; Sur-reply 6–7. Hence, “salience” in claim 16 should have the same meaning as “salience” in claim 1.

Second, the ’645 patent’s specification supports the conclusion that “salience” means “user interaction or activity.” The specification explains that “[t]here are a number of differences in browsing activity” on “handled devices” compared to personal computers and that due to those differences “conventional client-side monitoring scripts cannot accurately monitor

users' interaction with web pages and mobile applications.” Ex. 1001, 2:15–17, 2:32–35. The specification also explains that the invention purports to “provide a solution that overcomes the deficiencies of conventional techniques for tracking and analyzing users' browsing activity.” *Id.* at 2:36–38. An exposure map showing “user interaction or activity” with improved accuracy comports with the specification's stated objective.

The specification additionally explains that an “exposure map or report show[s] areas in a web page” that a user of a client device “most interacted and/or viewed.” Ex. 1001, 3:46–49. User interactions with a web page include keyboard events and mouse events, e.g., click events, not just a timespan of exposure. *Id.* at 5:39–45; *see id.* at 1:52–56.

Also, Figure 2 illustrates a flowchart for “collecting and recording user activity information.” Ex. 1001, 3:15–17, 6:29–32, Fig. 2; *see id.* at 6:32–7:15. Figure 3 illustrates a flowchart for “tracking activities of a user of a client device” by using “user activity information” to generate different types of exposure maps. *Id.* at 7:16–67, Fig. 3; *see id.* at 3:18–19.

Figure 3 includes step S340 for generating a “pageview-level exposure map” in response to “user activity information.” Ex. 1001, 7:30–34, Fig. 3; *see id.* at 7:36–37. A pageview-level exposure map results from “processing the received user activity data” and indicates “the salience of the content in the pageview visited by” the user of the client device. *Id.* at 7:30–32, 8:1–5, Fig. 4; *see id.* at 4:51–56. A pageview-level exposure map should reflect the input information, i.e., “user activity information” and “user activity data,” such as keyboard events and mouse events.

Further, Figure 3 includes step S360 for generating a “visitor-level exposure map” by aggregating pageview-level exposure maps for the user of the client device. Ex. 1001, 7:48–51, 9:38–41, Fig. 3. A visitor-level exposure map may represent any of the following: (1) “the time the user interacted and viewed any area in any visited web page”; (2) “whether the user viewed a certain page area”; and (3) “in how many pageviews a specific user viewed.” *Id.* at 7:51–55. A visitor-level exposure map that represents “whether the user viewed a certain page area” denotes a yes-or-no (binary) viewing determination for the area. *See id.* Also, a visitor-level exposure map cannot exceed the sum of its component pageview-level exposure maps. *See id.* at 9:38–42.

Because a visitor-level exposure map may represent “whether the user viewed a certain page area” corresponding to a yes-or-no (binary) viewing determination and because a visitor-level exposure map cannot exceed the sum of its component pageview-level exposure maps, a pageview-level exposure map may also represent “whether the user viewed a certain page area” corresponding to a yes-or-no (binary) viewing determination. So a pageview-level exposure map does not necessarily represent a timespan of exposure.

Additionally, the ’645 patent discloses various embodiments of exposure maps. *See, e.g.,* Ex. 1001, 7:30–62, 9:8–45, Figs. 3–4. In one embodiment, an exposure map “is a two-dimensional map of exposure time values, with each such value indicating the time a specific area was visible or ‘exposed’.” *Id.* at 9:28–30. In one embodiment, “all mapped viewport instances are aggregated,” and “the delta time spans of all viewport instances respective of the mapped viewports are computed as a weighted sum” to

“determine the salience of the visible area.” *Id.* at 9:8–17. In one embodiment, “the weight can be assigned according to the viewport zoom level.” *Id.* at 9:17–19.

By proposing that we construe “salience” to mean “a graphical indication of the timespan of exposure of a webpage area,” Patent Owner attempts to limit claims 1 and 16 to a preferred embodiment by reading a limitation from the specification into the claims. *See* Resp. 17, 39. That attempt conflicts with the specification’s explanation that “the embodiments disclosed are only examples of the many advantageous uses of the innovative teachings herein.” Ex. 1001, 3:28–30.

That attempt also conflicts claim-construction principles. Inventors can act as their own lexicographers if they clearly set forth a definition of a claim term other than its ordinary and customary meaning. *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 677 (Fed. Cir. 2015). But any such definition must appear in the specification “with reasonable clarity, deliberateness, and precision.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998); *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Absent any such definition, “limitations are not to be read into the claims from the specification.” *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Here, a definition of “salience” does not appear in the specification “with reasonable clarity, deliberateness, and precision.” *See, e.g.*, Ex. 1001, 2:42–3:2, 7:30–37, 9:8–25, code (57). Further, we agree with Petitioner that the ’645 patent’s disclosure that “to determine the salience of the visible area, the delta time spans of all viewport instances respective of the mapped viewports are computed,” demonstrates that Patent Owner “could have

drafted the claims to include narrower language, if desired.” *See* Reply 4 (citing Ex. 1001, 9:14–17); Ex. 1001, 9:14–17. Indeed, claims 11 and 21 depend indirectly from claims 1 and 16, respectively, and include narrower language about determining “the salience of the page-view by computing delta timespans.” Ex. 1001, 11:63–65, 13:8–10.

Based on the intrinsic evidence and for the reasons discussed above, we decline to adopt Patent Owner’s proposed construction and instead construe “salience” to mean “user interaction or activity.”

### 3. OTHER TERMS

We determine that no other claim terms require explicit constructions to decide the patentability issues. “[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *see Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

As explained below, however, we consider claim-construction issues when deciding whether the combined disclosures in Phillips and Zambonini teach (1) the subject matter of claims 3 and 18 reciting “a pan/zoom data set” and (2) the subject matter of claims 9 and 19 reciting “another page-view of the page.” *See infra* §§ III.D.6, III.D.12.

#### *D. Alleged Obviousness over Phillips and Zambonini: Claims 1–24*

Petitioner contends that claims 1–24 are unpatentable under § 103(a) as obvious over Phillips and Zambonini. *See* Pet. 5, 30–65. Below, we provide overviews of Phillips and Zambonini, and then we consider the obviousness issues raised by the parties. For the reasons explained below,

we agree with Petitioner that claims 1–8, 14–18, and 24 are unpatentable under § 103(a) as obvious over Phillips and Zambonini but disagree that claims 9–13 and 19–23 are unpatentable based on these references.

#### 1. OVERVIEW OF PHILLIPS (EXHIBIT 1005)

Phillips is a U.S. patent titled “Identification of Areas of Interest on a Web Page,” filed on January 24, 2012, and issued on February 19, 2013. Ex. 1005, codes (22), (45), (54). Phillips states that the invention “relates to determination of areas of interest on a web page or other information resource.” *Id.* at 1:6–7.

Phillips discloses an interest-tracking system for monitoring and tracking a user’s browsing activity on a mobile computing device. Ex. 1005, 1:29–2:25, 2:61–3:31, 6:53–8:47, code (57), Fig. 5. Phillips explains that a user will typically maintain a scroll position at an area of interest on a web page “for a relatively longer period of time than” for other parts of the web page. *Id.* at 3:19–25, 5:56–62, 11:6–13; *see id.* at 3:6–12, 11:13–17. “Longer periods of time may be indicative of relatively greater interest in an area.” *Id.* at 11:34–35. Hence, the interest-tracking system determines “areas of interest on a web page or other information resource based on the time a user spends in various scroll positions on the page.” *Id.* at 2:61–64, 5:64–67, code (57); *see id.* at 3:6–27, 11:27–46.

Phillips's Figures 2 and 3 (reproduced below) depict a mobile computing device, i.e., a mobile phone, with a display presenting a web page:

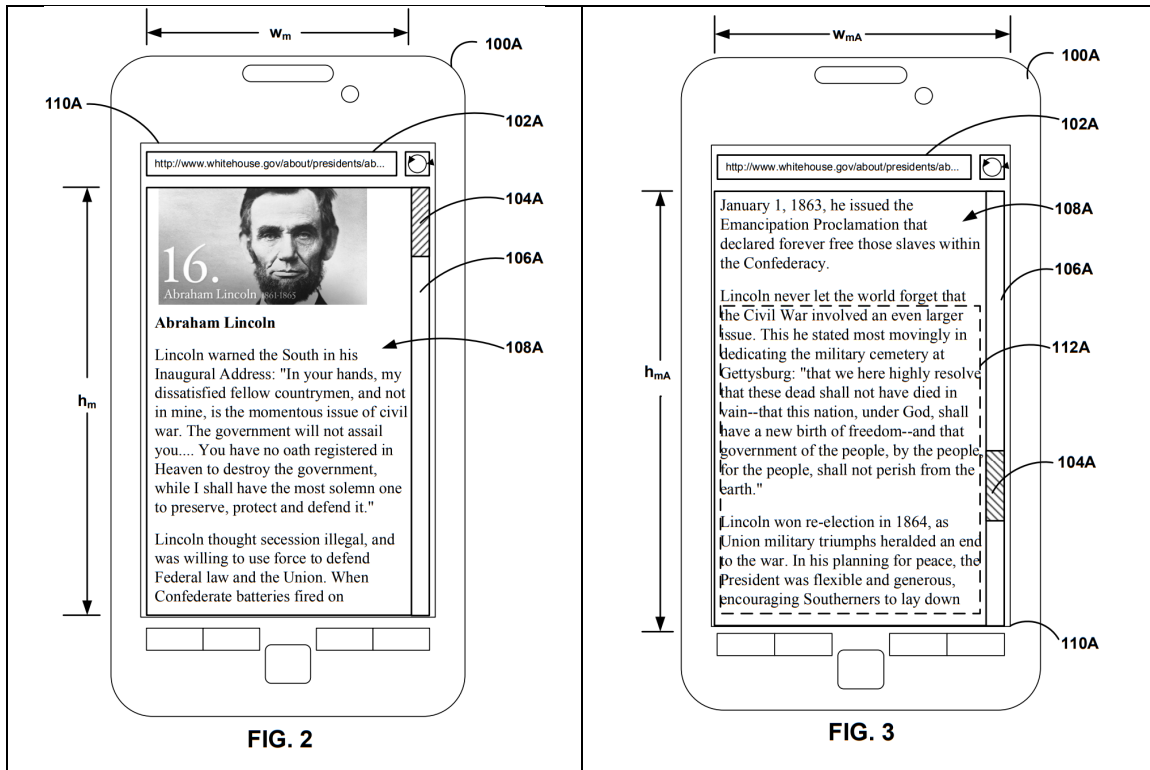


Figure 2 on the left illustrates computing device 100A with “thumb” 104A at its highest position in vertical scrollbar 106A such that “the topmost portion of” web page 108A appears on display 110A. Ex. 1005, 5:13–23, Fig. 2.

Figure 3 on the right illustrates computing device 100A with “thumb” 104A at a lower position in vertical scrollbar 106A compared to Figure 2 such that “a different portion of” web page 108A appears on display 110A compared to Figure 2. *Id.* at 5:36–45, Fig. 3. Although Figures 2 and 3 show only vertical scrollbar 106A, “display 110A may also include a horizontal scrollbar.” *Id.* at 5:28–30.

The interest-tracking system generates “one or more interest maps based on the areas of overlap to identify areas of interest (such as text,

pictures, videos, etc.) on a web page or other information resource which seem to be of relatively more or less interest to users.” Ex. 1005, 3:27–31, code (57). The information presented in the “one or more interest maps” may help an analyst achieve the following objectives:

- (1) “determine whether users are viewing or scanning the page efficiently or in the manner intended by the web page designers”;
- (2) “determine whether users are getting the intended content from the web page”; and
- (3) determine “whether a redesign may be necessary for the desired goals of the web page or other information resource to be achieved.”

*Id.* at 10:1–7.

Phillips’s Figure 5 (reproduced below) depicts a computing environment with an interest-tracking system for monitoring and tracking a user’s browsing activity on a mobile computing device:

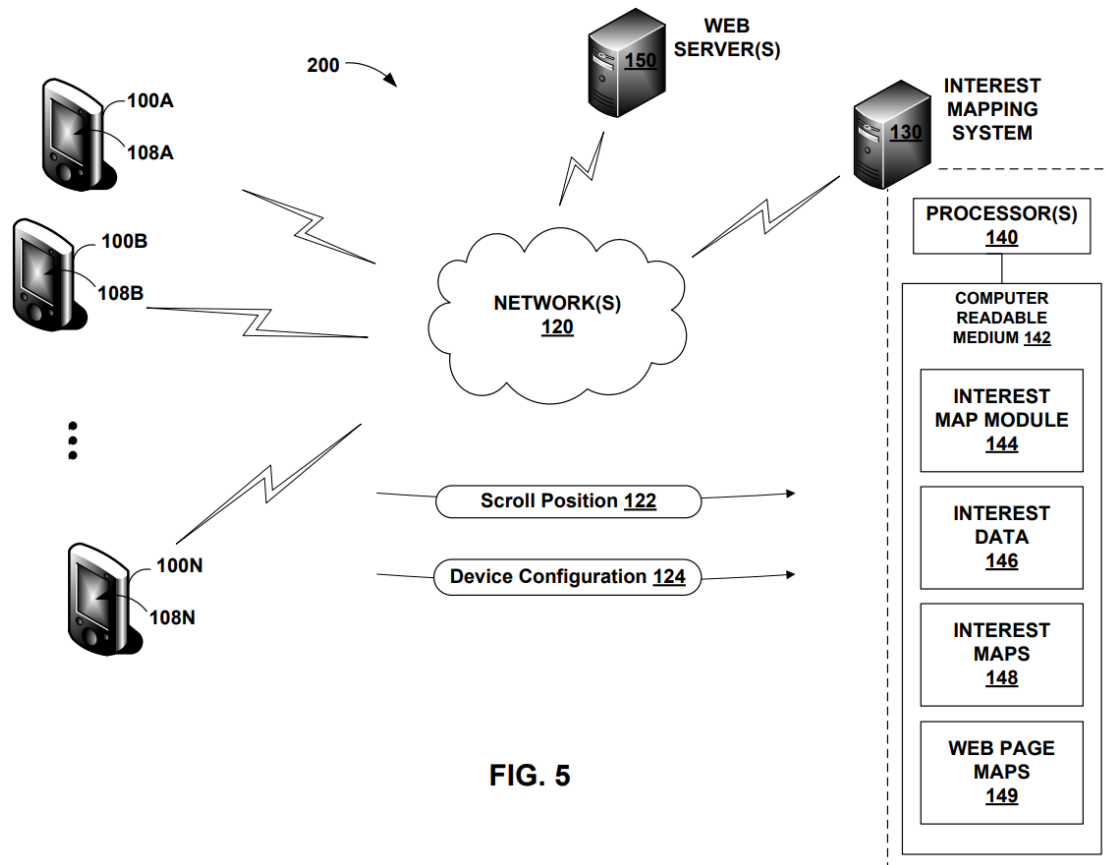


FIG. 5

Figure 5 illustrates computing environment 200 including mobile computing devices 100A–100N with displays 108A–108N, respectively, network 120, interest-mapping system 130, and one or more web servers 150. Ex. 1005, 2:42–44, 6:53–7:11, Fig. 5. Computing devices 100A–100N may include handheld devices, such as mobile phones and tablet computers. *Id.* at 2:64–3:3, 3:12–14, 3:36–40, 7:2–9.

As Figure 5 shows, computing devices 100A–100N may “access web pages or other information resources through a web browser application operating on the computing device.” Ex. 1005, 6:56–59, Fig. 5. Computing

devices 100A–100N may retrieve web pages or other information resources from one or more web servers 150 via network 120. *Id.* at 6:61–67.

Computing devices 100A–100N may communicate with interest-mapping system 130 via network 120. *Id.* at 7:10–11.

Interest-mapping system 130 includes one or more processors 140 and one or more types of computer memory 142 with “database storage functions, application storage functions, or other storage functions.” Ex. 1005, 7:12–17; *see id.* at 12:13–37. For example, memory 142 may include interest-mapping module 144, interest data 146, one or more interest maps 148, and one or more web page maps 149. *Id.* at 7:17–20, 7:39–40, Fig. 5.

Interest-mapping module 144 “identifies relative areas of interest on a web page or other information resource.” Ex. 1005, 7:20–23. Interest data 146 includes scroll position data 122, device configuration data 124, and other information received “from one or more of the computing devices 100A–100N that may be relevant to the determination of areas of interest on a web page or other information resource.” *Id.* at 7:23–28; *see id.* at 8:20–47.

Scroll position data 122 “may include, for example, vertical scroll position data and/or horizontal scroll position data.” Ex. 1005, 8:4–5. Device configuration data 124 may include “display screen dimensions (e.g., width and height), display resolution (e.g., dots per inch[]), and/or other display configuration data for each of the computing devices 100A–100N” that may affect “the amount of data or information viewable on the screen” or “the particular information content that is displayed at a particular scroll position on a particular device.” *Id.* at 8:6–12.

Interest-mapping system 130 analyzes scroll position data 122, device configuration data 124, and other information received “from one or more of the computing devices 100A–100N” to “identify, for each computing device 100, one or more scroll positions that are maintained for at least a predetermined period of time.” Ex. 1005, 7:54–60; *see id.* at 8:12–16, code (57). After analyzing the information, interest-mapping system 130 generates an interest map for a web page. *Id.* at 1:45–51, 2:45–50, 7:28–38, 8:48–55, 9:20–42, 9:62–65, Figs. 6–7; *see id.* at 8:16–19, 10:28–37, code (57). Interest-mapping system 130 may generate an interest map as a heat map, histogram, graph, table, bar graph, or “other numerical or graphical representation for displaying areas of a web page at which users paused for at least a predetermined period of time.” *Id.* at 1:47–51, 2:45–50, 7:35–38, 8:48–55, 9:20–24, 9:62–65, 10:36–37, Figs. 6–7; *see id.* at 8:16–19.

Interest-mapping system 130 stores “one or more web page maps 149,” e.g., a “map of each web page as a plurality of distinct areas within the web page.” Ex. 1005, 7:39–41; *see id.* at 8:55–59. Phillips discloses two ways to create a web page map comprising “a plurality of distinct areas within the web page.” *Id.* at 7:40–53, 8:55–63.

First, Phillips discloses creating a web page map by dividing a web page into “areas of equal size” based on the web page’s height and width. Ex. 1005, 7:41–47. The “areas of equal size” collectively represent the web page. For instance, “the web page is divided into 1000 discrete ‘bins’ corresponding to 1000 discrete areas on the page.” *Id.* at 8:55–57. When a web page map uses “areas of equal size” to collectively represent the web

page, an image on the web page may correspond to multiple map areas. *Id.* at 7:49–51.

Second, Phillips discloses creating a web page map by dividing a web page into “subjectively determined” areas based on the web page’s contents. Ex. 1005, 7:47–49, 8:57–63. When a web page map uses “subjectively determined” areas to represent the web page, an image on the web page may correspond to a single map area. *Id.* at 7:49–50.

Phillips explains that a “frequency value may be assigned to each area of the web page.” Ex. 1005, 10:28–29. For instance, “if 200 users paused at a particular area on the page, that area may be assigned a frequency value of 200,” and “if 10,000 users paused at a particular area on the page, that area may be assigned a frequency value of 10,000.” *Id.* at 10:29–33.

Phillips’s Figure 6 (reproduced below) depicts an example interest map for a web page:

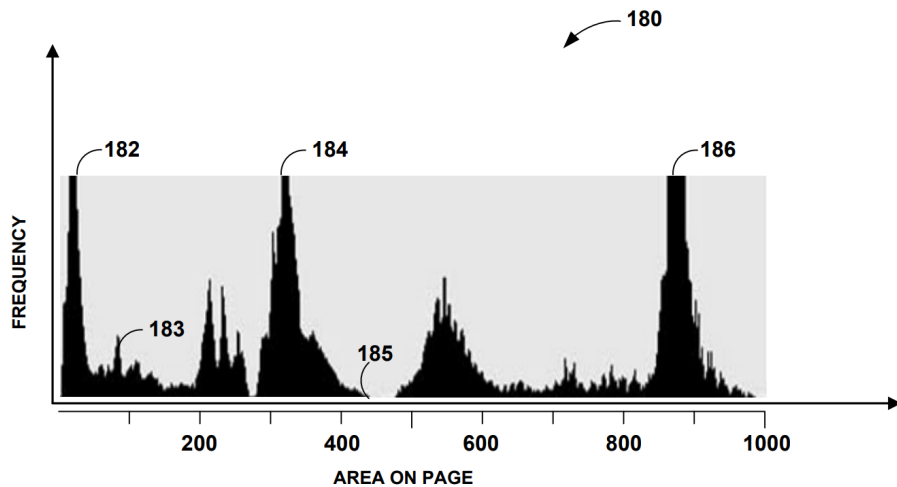


**FIG. 6**

Figure 6 illustrates example interest map 180 “presented as a histogram of the frequency (e.g., the number of times a plurality of computing devices paused at each area on the page for at least a predetermined period of time)

versus the area on the page,” e.g., a particular area on the web page.  
Ex. 1005, 2:45–47, 8:48–55, Fig. 6; *see id.* at 8:64–66. The “page areas designated by reference numerals 182, 184, and 186 had relatively more users pause at those areas on the page for at least the predetermined period of time than did, for example, areas 183 and 185.” *Id.* at 9:5–9, Fig. 6.

Phillips’s Figure 7 (reproduced below) depicts another example interest map for a web page:

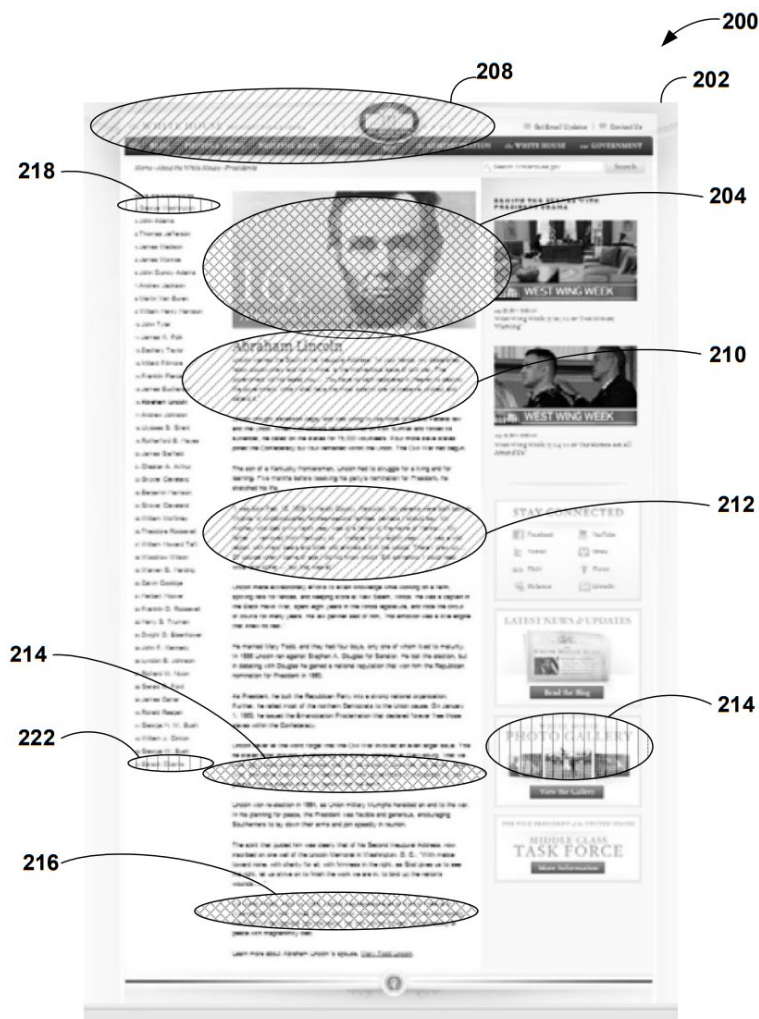


FIG. 7

Figure 7 illustrates example interest map 200 that “highlights areas of interest” on web page 202. Ex. 1005, 2:48–50, 9:20–24.

Phillips describes interest map 200 as a heat map. Ex. 1005, 9:22–24. Phillips explains that a heat map may “also convey” (1) “information concerning how many (e.g., the frequency) of the users paused or didn’t pause at a particular area on the page” and (2) “probability information concerning what page content users are most likely to pause at when they view the page.” *Id.* at 9:42–47.

Figure 7’s example interest map is “a representation of the web page overlaid with information indicative of the areas at which persons in a group of users paused for a predetermined period of time when viewing” the web page. Ex. 1005, 9:26–30, 9:40–42, Fig. 7. In particular, the crosshatching over areas 204, 214, and 216 denotes the areas where “users paused most frequently.” *Id.* at 9:30–34. In addition, the right-leaning hatching over areas 208, 210, and 212 denotes the areas of secondary interest to users, and the vertical hatching over areas 214, 218, and 222 denotes the areas of tertiary interest to users. *Id.* at 9:36–39.

A heat map may have “frequency information overlaid in different colors representing the frequency at which a plurality of users paused [at] different areas of the web page.” Ex. 1005, 9:48–52. For example, red may denote “areas having a relatively higher range of frequency values,” orange may denote “areas having a medium range of frequency values,” blue may denote “areas having relatively low frequency value[s],” and an absence of color may denote “areas not paused at.” *Id.* at 9:52–57. By identifying the areas on the web page “with the highest frequency values,” a “heat map may

assist in identifying those areas on the web page that are of most interest to users.” *Id.* at 9:57–61.

Phillips discloses other techniques for graphically representing user interest. *See* Ex. 1005, 11:27–46. In particular, Phillips explains that “more than one predetermined period of time may be used” to determine and show user interest. *Id.* at 11:27–32, 11:37–46. Phillips notes that a shorter time period may indicate “a relatively lesser degree of interest in a particular area,” while longer time periods may indicate “relatively greater interest in an area.” *Id.* at 11:32–37. For instance, a first time period  $t_1$  may denote “a first degree of interest in an area of a web page” and additional time periods  $t_2$ ,  $t_3$ , through  $t_n$  may denote “other degrees of interest in an area of a web page.” *Id.* at 11:28–32, 11:39–43.

## 2. OVERVIEW OF ZAMBONINI (EXHIBIT 1006)

Zambonini is an international patent application publication titled “Automated Measuring of Interaction with User Interfaces,” filed on April 5, 2007, and published on October 11, 2007. Ex. 1006<sup>4</sup>, codes (22), (43), (54). Zambonini states that the invention “relates to the recordal and reporting of user interaction with a user interface,” and more particularly to a system and method for “recording user interaction with a website” and “generating visual reports for identifying the usability of the website.” *Id.* at 1; *see id.* at 38–49.

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<sup>4</sup> For Exhibit 1006, we follow Petitioner’s practice and cite to the page numbers appearing in the published application rather than the page numbers applied to the exhibit.

Zambonini's Figure 1 (reproduced below) depicts a computing environment for Zambonini's invention:

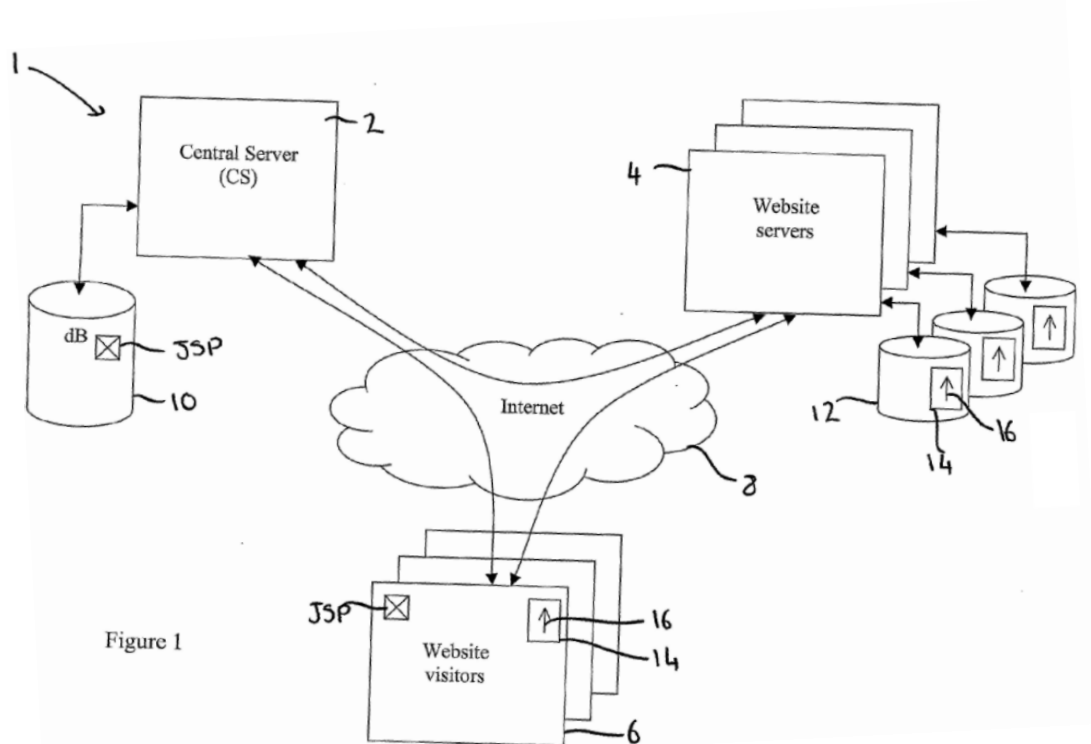


Figure 1 “is a schematic system diagram showing a central server (CS) embodying” Zambonini’s invention. Ex. 1006, 13, 15, Fig. 1. As Figure 1 shows, central server 2, website servers 4, and visitor terminals 6 communicate with each other via the Internet. *Id.* at 15, Fig. 1; *see id.* at 13.

Central server 2 may access database 10. Ex. 1006, 15. Database 10 stores a JavaScript program (JSP) for recording interaction data. *Id.* Website servers 4 may access database 12. *Id.* Database 12 stores hypertext markup language (HTML) files 14 for websites. *Id.* Each HTML file 14 includes pointer 16 that points to the JavaScript program in database 10. *Id.* at 15, 21–22, 25. Website servers 4 host websites that visitor terminals 6 may access remotely, e.g., using a browser. *Id.* at 15, 17. Each website typically includes multiple web pages. *Id.* at 17; *see id.* at 3, 8.

A website administrator who wants to analyze visitor interactions with a website's web pages registers the website with central server 2. Ex. 1006, 15. Then, when a "visitor views a web page of a registered website" with a visitor terminal, pointer 16 in HTML file 14 on the visitor terminal retrieves the JavaScript program from database 10. *Id.* at 16, Fig. 2; *see id.* at 21. The JavaScript program executes on the visitor terminal "such that when visitors click on web pages of the website, interaction data, i.e. information regarding the viewing session, is captured" by the visitor terminal. *Id.* at 16, Fig. 2; *see id.* at 11, 21, code (57). After capturing the interaction data, the visitor terminal transmits the interaction data to central server 2. *Id.* at 16, Figs. 2–3. Then, central server 2 stores the interaction data in database 10, i.e., in interaction records. *Id.* at 5, 10, 16–17; *see id.* at 2–4, 23, code (57), Figs. 4–5.

The interaction data includes session data and click data. Ex. 1006, 16; *see id.* at 2–3, 26–27. The session data concerns the visitor terminal used for the viewing session and may include the following: "a session start date, a session start time, a browser name, a browser version, a screen resolution, a screen colour depth, a default font size, an IP address, and an operating system of the remote terminal." *Id.* at 2, 6, 11, 16, 23, 26, 38, 47. The click data concerns each visitor click on a web page and may include the following:

- an X and Y co-ordinate for the click, a date and time for the click, an X and Y (positional) co-ordinate of the target (the element the visitor clicked on), a Unique ID for the target, a variable for the horizontal and vertical pixels the user has scrolled prior to making the click, an X and Y co-ordinate for the key element (the element of the web page that is used as a point of reference), a variable for the width and height of the

browser window, a record for the path a visitor has taken to arrive at the current page of the website, a measure for the time that has lapsed since the last click in the session, or the page load in the case of the first click on any page, a sequence number for the click within the session, a sequence number for the click on that page (first click=0, second click=1), a URI of the page on which the click occurred (i.e. page ID), and information about the element that was clicked (e.g. the URI of the element, the link reference, the element type).

*Id.* at 24, 26–27, 39; *see id.* at 3, 12.

Zambonini notes that “the term ‘click’ represents any user selection of, or interaction with, icons/elements on the web page,” not just mouse clicks. Ex. 1006, 24; *see id.* at 5, 37. Zambonini instructs that the disclosed techniques are “equally applicable to touch screens or panels” and that “interaction with the touch screen may be using a pointing tool or a user’s finger.” *Id.* at 24, 37.

Preferably, “when a visitor views a website, a session ID is assigned,” and “each time the visitor clicks on a web page of the website, information relating to each click is linked to that web page and the relevant session ID.” Ex. 1006, 17; *see id.* at 3, 12. Storing “the interaction data using the session ID” advantageously links all of the data about a single user’s interaction with a web page. *Id.* at 3. And linking all of the data about a single user’s interaction with a web page advantageously provides a website administrator with “insight into how” each user interacts with the web page, e.g., by allowing the website administrator to view every interaction event. *Id.* at 3, 16, 36.

For instance, for “each recorded session, each click results in a record of information relating to that click” associated with the session ID. Ex. 1006, 17; *see id.* at 24. Hence, “analysis of every visitor is possible,

down to their individual route through the site and the actual locations that they clicked.” *Id.* at 36–37.

Zambonini’s Figure 5 (reproduced below) depicts relational information stored in database 10:

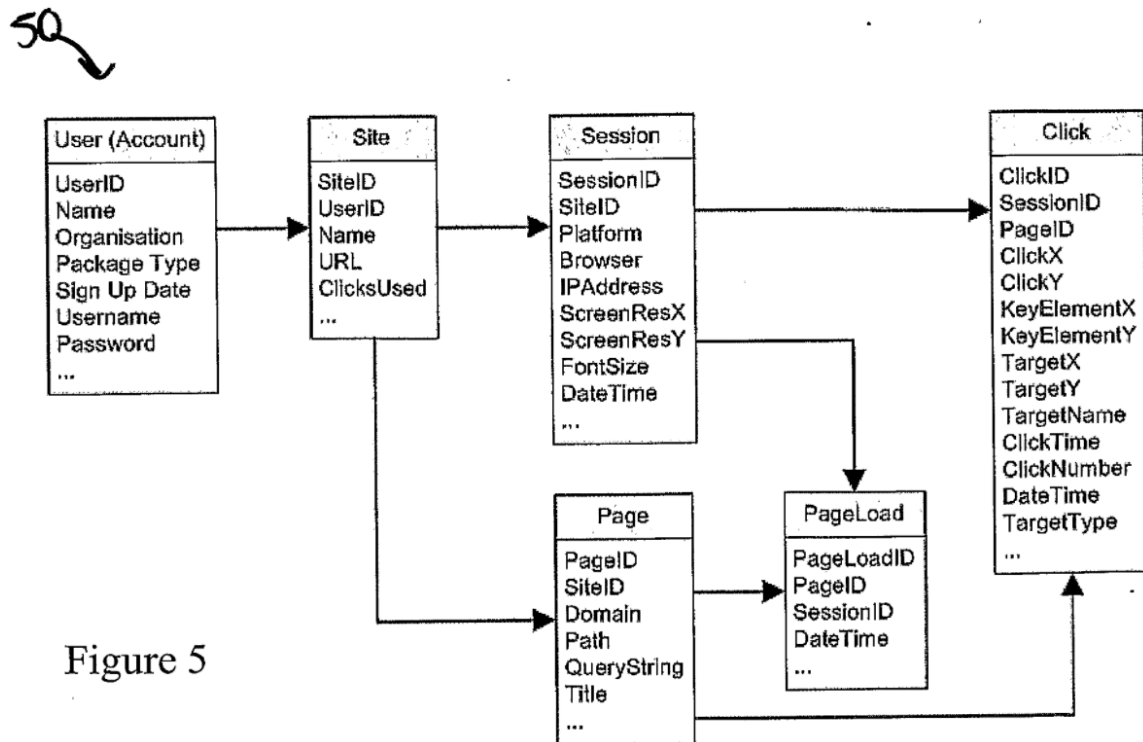


Figure 5 “is a schematic block diagram of an exemplary relational table illustrating the relationships between data” stored in database 10.

Ex. 1006, 14, Fig. 5; *see id.* at 17. As Figure 5 shows, database 10 includes relational tables 50 containing interaction data, i.e., session data and click data, including browser information, URL, click ID, page ID, site ID, and session ID. *Id.* at 17, Fig. 5; *see id.* at 16, 21, code (57).

Central server 2 includes an interaction recorder “for receiving and recording the interaction data in session logs” stored in database 10.

Ex. 1006, 16, Fig. 3; *see id.* at 2–4, 14, 18, 23–24, Fig. 9. The interaction recorder “record[s] the received interaction data from the remote terminal 6,

including data associated with the remote terminal 6 and browser, and click data.” *Id.* at 23; *see id.* at 18, 26–27.

Central server 2 also includes a reporting module “for providing real-time reports to the users regarding the interaction data.” Ex. 1006, 16, Fig. 3; *see id.* at 5, 14, 28, Fig. 11. The reporting module may generate various reports, such as the following:

- (1) “heat maps that graphically show the volume and location of clicks on the web page”;
- (2) “click maps that graphically show the actual position of clicks and whether they were on or off target”;
- (3) “hover maps which graphically provide usage data/statistics for individual elements on the web page”;
- (4) “click stream reports that show a visitors [sic] path through the website”; and
- (5) “page statistic summaries which provide summary statistics for the page being reported.”

*Id.* at 27–28; *see id.* at 16, 26, 32–33, 36, Figs. 13–16, 18, 20. “Typically, the reports are displayed to the user in an image” overlaying “the web page in question.” *Id.* at 27; *see id.* at 33.

Zambonini explains that it is “highly advantageous for website administrators/users to identify the elements on the website that are of interest to visitors and those that are not.” Ex. 1006, 37. According to Zambonini, visual reports (1) “improve the ease with which the popularity or unpopularity of components within the web page can be identified” and (2) “immediately provide[] the ability to identify the true popularity or unpopularity of locations within the website.” *Id.* at 5–6. For example, heat maps “readily identify where visitors have clicked, including an indication

of the popularity of certain selectable icons, such as hyperlinks, and the unpopularity of others.” *Id.* at 16; *see id.* at 31–32, Fig. 13.

Zambonini also explains that “real-time graphical reporting” of the interaction data “is possible by viewing of the currently stored interaction data.” Ex. 1006, 2, 4, code (57); *see id.* at 10–11, 13. According to Zambonini, “real-time reports enable[] users to react extremely quickly if the desired results are not being achieved.” *Id.* at 37; *see id.* at 10, 17.

Zambonini’s Figure 13 (reproduced below) depicts a heat map generated by the reporting module in central server 2:

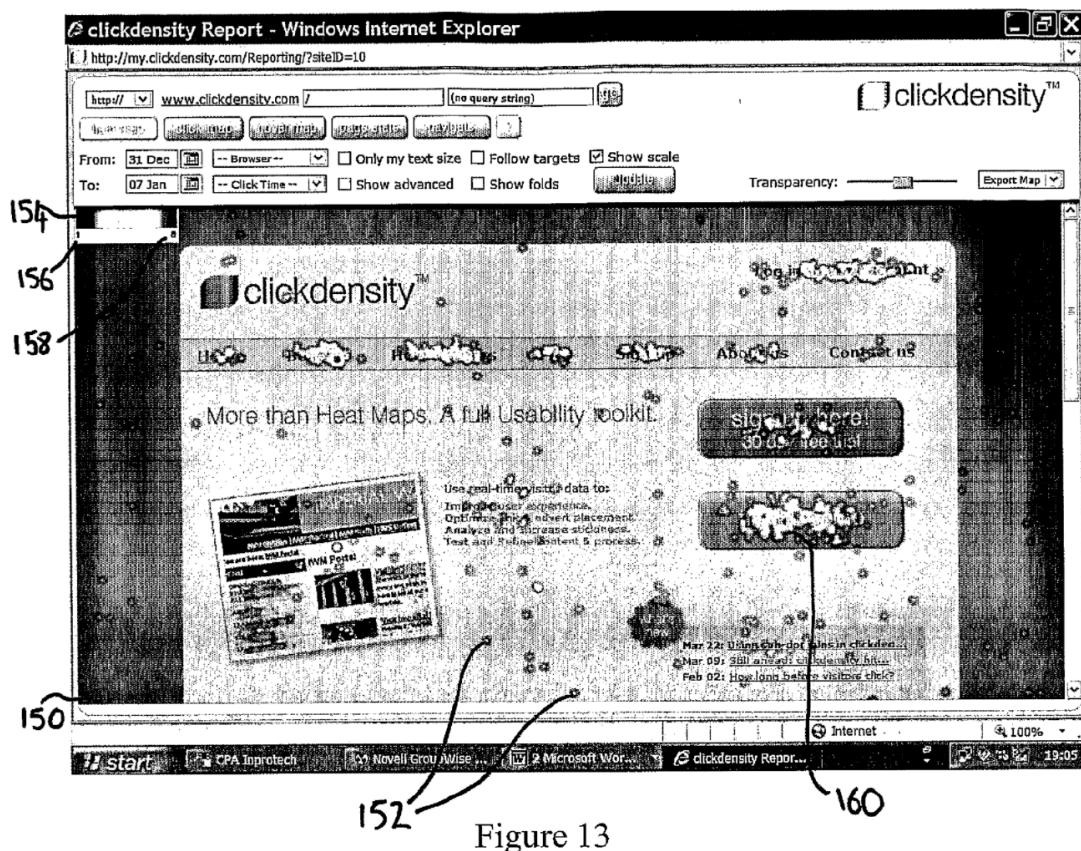
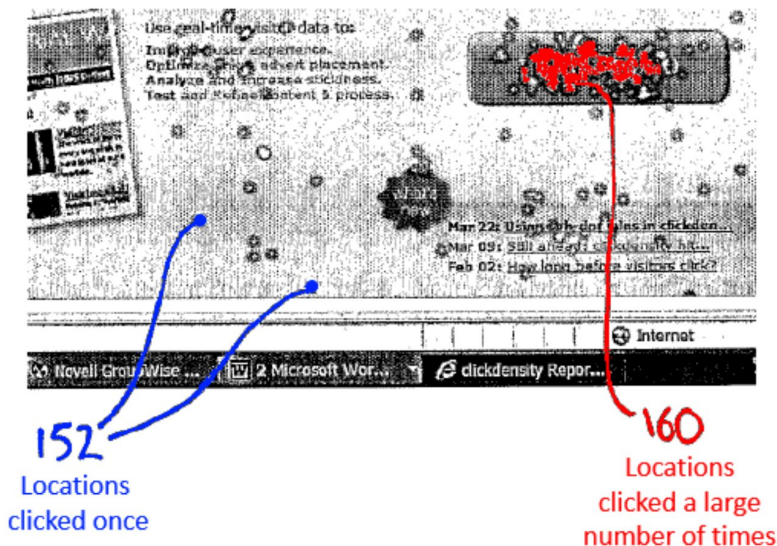


Figure 13 shows heat map 150 with colored markers 152 and 160 “in the heat map report image giving it a three-dimensional information presentation ability.” Ex. 1006, 31, Fig. 13; *see id.* at 5, 14. A “plurality of clicks at one co-ordinate location results in a graduated” color change, thus “showing not

only the locations which are clicked most often but an indication as to how often one location is clicked in relation to other areas.” *Id.* at 31.

In Figure 13, “a location, which is clicked once, shows a blue marker 152, and a location which has been clicked a large number of times shows a red marker 160.” Ex. 1006, 31; *see id.* at 32. The colors “are adjusted so that the ‘hottest’ part of the resulting image is the point where there were the most clicks on the web page.” *Id.* at 32.

An annotated excerpt from Zambonini’s Figure 13 is reproduced below:



This annotated excerpt shows blue marker 152 identifying locations clicked once and red marker 160 identifying locations clicked many times.

Zambonini discloses two ways to generate a heat map by superimposing data on a representation of a web page. Ex. 1006, 5, 31. First, Zambonini discloses generating a heat map “by plotting the clicks on a web page recorded in the database on a bitmap image.” *Id.* at 31. Second, Zambonini discloses generating a heat map “independently of the image of the web page” and then overlaying the map information “on top of the actual

web page during the reporting process.” *Id.* Zambonini also discloses exporting a heat map as a portable image file that a website administrator may save. *Id.* at 10, 45.

### 3. INDEPENDENT CLAIM 1

#### (a) Preamble [1pre]

Claim 1’s preamble recites “[a] method for monitoring and tracking browsing activity of a user on a client device.” Ex. 1001, 10:56–57.

Citing Phillips, Petitioner asserts that the Phillips-Zambonini combination would have satisfied claim 1’s preamble. Pet. 21–22 (citing Ex. 1005, 2:61–3:3, 5:64–67, codes (54), (57)); *see* Ex. 1003 ¶¶ 100–108. In particular, Petitioner contends that the combination “would have monitored and tracked the browsing activity of a user on a handheld client device having a touch screen display” to “generate ‘interest maps for [a] web page’ indicating ‘those areas of the web page which seem to be of relatively more or less interest,’ ‘based on the time a user spends in various scroll positions on the page.’” Pet. 21 (alteration by Petitioner) (quoting Ex. 1005, code (57)).

Patent Owner makes no arguments specific to claim 1’s preamble. *See* Resp. 27–44; Sur-reply 5–15. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Generally, a preamble does not limit a claim. *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002). We need not decide whether claim 1’s preamble limits the claim because we agree with Petitioner that the Phillips-Zambonini combination teaches claim 1’s

preamble. *See* Pet. 16–22; Ex. 1003 ¶¶ 100–108; *infra* § III.D.3(f) (analyzing reasons to combine the references).

Specifically, Phillips discloses an interest-tracking system for monitoring and tracking a user’s browsing activity on a mobile computing device. Ex. 1005, 1:29–2:25, 2:61–3:31, 6:53–8:47, code (57), Fig. 5; *see* Ex. 1003 ¶¶ 58–68. A mobile computing device in Phillips corresponds to “a client device” according to claim 1’s preamble. *See* Ex. 1003 ¶¶ 100–103.

(b) Limitation [1a]

Claim 1 recites “receiving, from the client device, browsing activity information of the user interacting with at least one page displayed on the client device, wherein the client device is a handheld device having a touch screen display.” Ex. 1001, 10:58–62.

Citing Phillips and Zambonini, Petitioner asserts that the Phillips-Zambonini combination would have accomplished limitation [1a]. Pet. 22 (citing Ex. 1005, 1:16–25, 1:45–51, 2:48–4:67, 5:1–11, 5:13–27, 5:31–67, 6:12–8:37, 8:48–11:6, codes (54), (57), Figs. 1–9; Ex. 1006, 1–6, 10–11, 16, 26–28, 31, 33, 36–37, code (57), Figs. 3–6, 9, 11); *see* Ex. 1003 ¶¶ 109–116. In particular, Petitioner contends that Phillips discloses handheld devices, e.g., wireless mobile handsets, with “one or more processors 20, a memory 30, and a user interface 18.” Pet. 22 (citing Ex. 1005, 3:33–51). Petitioner also contends that user interface 18 may include a touch screen, such as a touch-screen display “configured to detect and respond to touch-based input” from a user. *Id.* at 22–23 (citing Ex. 1005, 3:58–64). In addition, Petitioner contends that the handheld devices in Phillips “retrieve web pages ‘from one or more remote web servers 150’ over network(s) 120, such that

the ‘web pages or portions thereof’ are displayed on” the handheld devices. *Id.* at 23 (quoting Ex. 1005, 6:59–63).

Further, Petitioner asserts that Phillips’s interest-mapping system 130 receives from the handheld devices “browsing activity information in the form of ‘scroll position data 122 and device configuration data 124.’” Pet. 24 (quoting Ex. 1005, 7:54–56). Petitioner also asserts that interest-mapping system 130 “generates exposure maps based on this data by identifying ‘for each computing device 100, one or more scroll positions that are maintained for at least a predetermined period of time.’” *Id.* at 25 (quoting Ex. 1005, 7:56–60).

Patent Owner makes no arguments specific to limitation [1a]. *See* Resp. 27–44; Sur-reply 5–15.

We agree with Petitioner that the combined disclosures in Phillips and Zambonini teach limitation [1a]. *See* Pet. 22–25; Ex. 1003 ¶¶ 64, 102, 109–116; *infra* § III.D.3(f) (analyzing reasons to combine the references). Specifically, Phillips discloses a handheld device having (1) a touch-screen display and (2) a web browser with navigational tools permitting user interaction with a web page. Ex. 1005, 3:32–5:55, Figs. 1–5; *see* Ex. 1003 ¶¶ 64, 102, 110.

Phillips's Figure 1 (reproduced below) depicts a handheld device:

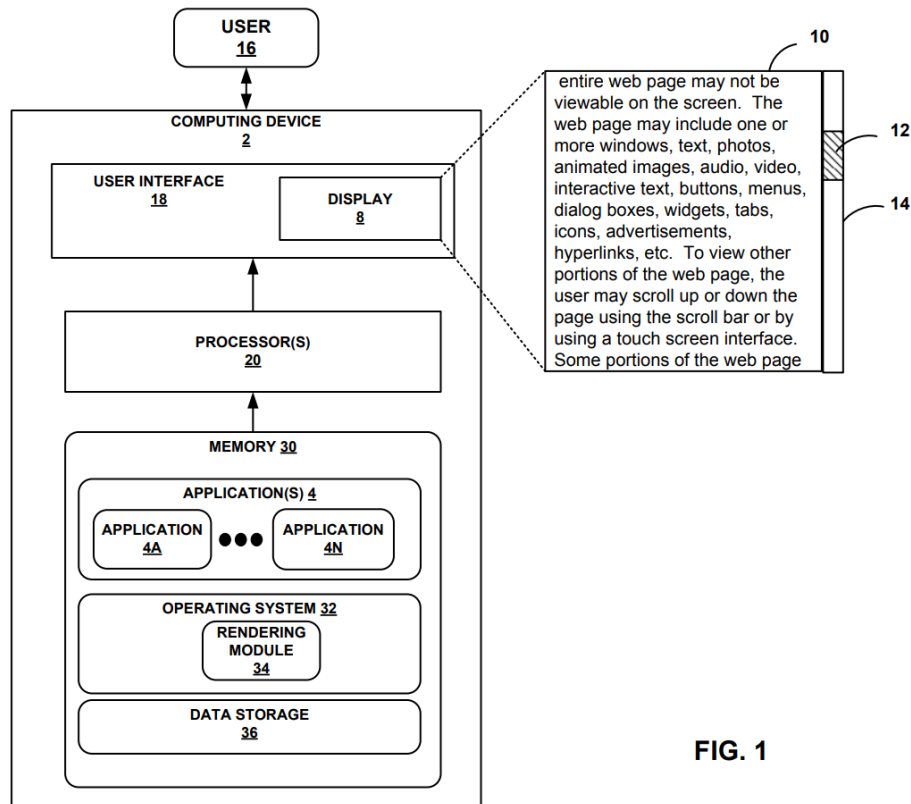


FIG. 1

Figure 1 “is a conceptual diagram illustrating an example computing device,” such as a mobile phone or a tablet computer. Ex. 1005, 2:33–35, 2:64–3:3, 3:12–14, 3:32–33, 3:36–40, 7:2–9, Fig. 1; *see* Ex. 1003 ¶¶ 64, 102, 110.

As Figure 1 shows, the example computing device includes the following:

- (1) user interface 18 with display 8;
- (2) one or more processors 20; and
- (3) memory 30 with applications 4A–4N, operating system 32, and data storage 36.

Ex. 1005, 3:45–56, Fig. 1; *see* Ex. 1003 ¶ 110. User interface 18 may include “one or more input devices to enable a user to input data, such as a keyboard, mouse, touchpad, track pad, touch screen, [or] touch pad.”

Ex. 1005, 3:48–50; *see* Ex. 1003 ¶ 110. In addition, display 8 may function as a touch screen “to detect and respond to touch-based input from” a user. Ex. 1005, 3:58–60; *see* Ex. 1003 ¶ 110.

Applications 4A–4N may include a web browser. Ex. 1005, 4:22–27, 4:37–40; *see* Ex. 1003 ¶ 216. The web browser “may invoke [a] rendering module” to “render a web page 10 for display on display 8.” Ex. 1005, 4:48–50; *see id.* at 4:37–40; Ex. 1003 ¶ 216. The web browser “may include one or more navigational tools that provide the ability to navigate through continuous text, pictures, or other content on a web page.” Ex. 1005, 4:64–67; *see id.* at 4:67–5:9; Ex. 1003 ¶ 216.

Thus, Phillips discloses “the client device is a handheld device having a touch screen display” permitting “user interact[ion] with at least one page displayed on the client device” according to limitation [1a]. *See* Ex. 1003 ¶¶ 64, 102, 110, 216.

Phillips also discloses “receiving, from the client device, browsing activity information of the user interacting with at least one page displayed on the client device” according to limitation [1a]. *See* Ex. 1003 ¶¶ 112–113. Specifically, Phillips’s interest-mapping system 130 receives “from one or more of the computing devices 100A–100N” scroll position data 122 and other information “that may be relevant to the determination of areas of interest on a web page.” Ex. 1005, 7:10–11, 7:23–28, 7:54–56, Fig. 5; *see id.* at 8:20–47; Ex. 1003 ¶¶ 60–61, 105, 112. Scroll position data 122 “may include, for example, vertical scroll position data and/or horizontal scroll position data.” Ex. 1005, 8:4–5; *see* Ex. 1003 ¶ 113. Scroll position data 122 corresponds to the claimed “browsing activity information of the

user interacting with at least one page displayed on the client device.” *See* Ex. 1003 ¶¶ 113, 116.

Additionally, as discussed in the Institution Decision, Zambonini discloses that a central server receives from a visitor terminal interaction data including session data and click data. Ex. 1006, 15–16, 22–23, Figs. 2–3; *see id.* at 2–3, 26–27; Ex. 1003 ¶¶ 74, 178–179; Inst. Dec. 35–36. The click data concerns each visitor click on a web page and may include the following:

an X and Y co-ordinate for the click, a date and time for the click, an X and Y (positional) co-ordinate of the target (the element the visitor clicked on), a Unique ID for the target, a variable for the horizontal and vertical pixels the user has scrolled prior to making the click, an X and Y co-ordinate for the key element (the element of the web page that is used as a point of reference), a variable for the width and height of the browser window, a record for the path a visitor has taken to arrive at the current page of the website, a measure for the time that has lapsed since the last click in the session, or the page load in the case of the first click on any page, a sequence number for the click within the session, a sequence number for the click on that page (first click=0, second click=1), a URI of the page on which the click occurred (i.e. page ID), and information about the element that was clicked (e.g. the URI of the element, the link reference, the element type).

Ex. 1006, 24, 26–27, 39; *see id.* at 3, 12; Ex. 1003 ¶ 214. The click data corresponds to the claimed “browsing activity information of the user interacting with at least one page displayed on the client device.” *See* Ex. 1003 ¶ 116.

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach limitation [1a].

(c) Limitation [1b]

Claim 1 recites “receiving, from the client device, page information identifying in part the at least one page displayed on the client device.”

Ex. 1001, 10:63–65.

Citing Phillips and Zambonini, Petitioner asserts that the Phillips-Zambonini combination would have accomplished limitation [1b]. Pet. 25 (citing Ex. 1005, 1:16–51, 2:48–3:3, 3:33–40, 4:25–60, 5:64–67, 7:23–8:37, 9:20–10:60, codes (54), (57), Figs. 5, 7–9; Ex. 1006, 2, 6, 11, 28, 38, 41, 47); *see* Ex. 1003 ¶¶ 117–125. In particular, Petitioner contends that Phillips’s interest-mapping system 130 stores the following information:

- (1) “one or more web page maps 149 . . . of each web page as a plurality of distinct areas within the web page”; and
- (2) “interest data 146” that “may include, for example, scroll position data 122, device configuration data 124, or other information received from one or more of the computing devices 100A–100N.”

Pet. 25–26 (alteration by Petitioner) (quoting Ex. 1005, 7:23–26, 7:39–41).

In addition, Petitioner contends that interest-mapping system 130 “determine[s] the displayed portion of the web page . . . based on the scroll position data 122 and the device configuration data 124 received from the computing device.” Pet. 26 (alterations by Petitioner) (emphasis omitted) (quoting Ex. 1005, 7:67–8:3). Petitioner also contends that interest-mapping system 130 “analyze[s] identified scroll positions and the areas of the web page to generate one or more interest maps 148.” *Id.* (alteration by Petitioner) (quoting Ex. 1005, 8:17–19).

Further, Petitioner asserts that Zambonini’s central server receives a “current GUI Page ID” and/or a “URL/Path/Query string of the page” as

data identifying a web page viewed by a user. Pet. 27 (emphasis omitted) (citing Ex. 1006, 2–3, 26–27, 37, Fig. 5).

Patent Owner makes no arguments specific to limitation [1b]. *See* Resp. 27–44; Sur-reply 5–15.

We agree with Petitioner that the combined disclosures in Phillips and Zambonini teach limitation [1b]. *See* Pet. 25–28; Ex. 1003 ¶¶ 117–125; *infra* § III.D.3(f) (analyzing reasons to combine the references).

Specifically, Phillips’s interest-mapping system 130 receives “from one or more of the computing devices 100A–100N” device configuration data 124 and other information “that may be relevant to the determination of areas of interest on a web page.” Ex. 1005, 7:10–11, 7:23–28, 7:54–56, Fig. 5; *see id.* at 8:20–47; Ex. 1003 ¶¶ 60–61, 105, 113, 118.

Device configuration data 124 may include “display screen dimensions (e.g., width and height), display resolution (e.g., dots per inch[]), and/or other display configuration data for each of the computing devices 100A–100N” that may affect “the amount of data or information viewable on the screen” or “the particular information content that is displayed at a particular scroll position on a particular device.” Ex. 1005, 8:6–12; *see* Ex. 1003 ¶ 113. The ’645 patent indicates that “page information” includes the “display resolution” in Phillips’s device configuration data 124. *See* Ex. 1001, 4:60–67, 11:38–43. For example, claim 7 specifies that “page information” includes the “resolution and depth of the touch screen display.” *Id.* at 11:38–43.

Additionally, as discussed in the Institution Decision, Zambonini discloses “receiving, from the client device, page information identifying in part the at least one page displayed on the client device” according to

limitation [1b]. *See* Inst. Dec. 38–39. As discussed above, Zambonini explains that a central server receives from a visitor terminal interaction data including session data and click data. Ex. 1006, 15–16, 22–23, Figs. 2–3; *see id.* at 2–3, 26–27; Ex. 1003 ¶¶ 74, 178–179; *supra* § III.D.3(b). The session data concerns the visitor terminal used for the viewing session and may include the following: “a session start date, a session start time, a browser name, a browser version, a screen resolution, a screen colour depth, a default font size, an IP address, and an operating system of the remote terminal.” Ex. 1006, 2, 6, 11, 16, 23, 26, 38, 47; *see* Ex. 1003 ¶¶ 115, 183. The ’645 patent indicates that “page information” includes the “screen resolution” and “screen colour depth” in Zambonini’s session data. *See* Ex. 1001, 4:60–67, 11:38–43.

Further, as discussed in the Institution Decision, Zambonini explains that a “click is recorded against the web page on which it is made” to allow “users to view reports for each web page.” Ex. 1006, 27; *see* Ex. 1003 ¶ 122; Inst. Dec. 39. Zambonini discloses “page ID” and “URL/Path/Query String of the page” as data identifying a web page viewed by a user. Ex. 1006, 24, 27; *see id.* at 3, 6, 12, 39, 41–42, Fig. 5; Ex. 1003 ¶ 122. The ’645 patent indicates that “page information” includes a URL. *See* Ex. 1001, 4:60–67, 11:38–43. For example, claim 7 specifies that “page information” includes a “uniform resource locator (URL).” *Id.* at 11:38–43.

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach limitation [1b].

(d) Limitation [1c]

Claim 1 recites “creating a reference layout of the at least one page displayed on the client device.” Ex. 1001, 10:66–67.

Citing Phillips and Zambonini, Petitioner asserts that the Phillips-Zambonini combination would have accomplished limitation [1c]. Pet. 28–29 (citing Ex. 1005, 1:16–51, 2:48–5:11, 5:64–67, 6:53–8:37, 9:20–10:60, Figs. 1, 5, 7–9; Ex. 1006, 2, 6, 11, 27–28, 38, 41, 47, Fig. 5); *see* Ex. 1003 ¶¶ 126–136. In particular, Petitioner contends that Phillips’s interest-mapping system 130 “creates a reference layout in the form of a ‘[w]eb page map 149’ that ‘stores a map of each web page as a plurality of distinct areas within the web page.’” Pet. 29 (alteration by Petitioner) (emphasis omitted) (quoting Ex. 1005, 7:40–41). Further, Petitioner asserts that Zambonini demonstrates that this feature was known in the art by the critical date by disclosing reports “displayed to the user in an image which overlays the web page in question,” such as heat maps that “graphically show the volume and location of clicks on the web page.” *Id.* at 33 (emphasis omitted) (quoting Ex. 1006, 27).

Patent Owner contends that “the proposed combination fails to disclose the claimed reference layout” required by limitation [1c]. *See* Sur-reply 14. Patent Owner also contends that “Petitioner cannot avoid the fact that there is no teaching in Phillips on how its webpage map is utilized.” *Id.*

We agree with Petitioner that the combined disclosures in Phillips and Zambonini teach limitation [1c]. *See* Pet. 29–34; Ex. 1003 ¶¶ 126–136; *infra* § III.D.3(f) (analyzing reasons to combine the references). Specifically, Phillips’s interest-mapping system 130 stores “one or more web page maps 149,” e.g., a “map of each web page as a plurality of distinct areas within the web page.” Ex. 1005, 7:39–41; *see id.* at 8:55–59; Ex. 1003 ¶¶ 62, 106, 118, 127. Phillips discloses two ways to create a web page map

comprising “a plurality of distinct areas within the web page.” Ex. 1005, 7:40–53, 8:55–63; *see* Ex. 1003 ¶¶ 62, 106, 118, 127.

First, Phillips discloses creating a web page map by dividing a web page into “areas of equal size” based on the web page’s height and width. Ex. 1005, 7:41–47; *see* Ex. 1003 ¶¶ 62, 127. The “areas of equal size” collectively represent the web page. For instance, “the web page is divided into 1000 discrete ‘bins’ corresponding to 1000 discrete areas on the page.” Ex. 1005, 8:55–57; *see* Ex. 1003 ¶ 163. When a web page map uses “areas of equal size” to collectively represent the web page, an image on the web page may correspond to multiple map areas. Ex. 1005, 7:49–51; *see* Ex. 1003 ¶¶ 62, 127.

Second, Phillips discloses creating a web page map by dividing a web page into “subjectively determined” areas based on the web page’s contents. Ex. 1005, 7:47–49, 8:57–63; *see* Ex. 1003 ¶¶ 62, 127, 163. When a web page map uses “subjectively determined” areas to represent the web page, an image on the web page may correspond to a single map area. Ex. 1005, 7:49–50; *see* Ex. 1003 ¶¶ 62, 127.

When Phillips creates a web page map by dividing a web page into “areas of equal size” that collectively represent the web page, Phillips associates every web page element with a map area. *See* Ex. 1005, 7:40–47, 8:55–57. Through those associations, the web page map “defines how the elements of the web page are positioned.” *See* Ex. 1001, 8:20; Ex. 1003 ¶ 126.

Further, Phillips uses a web page map, i.e., web page map 149, comprising “a plurality of distinct areas within the web page” to provide a foundation for an interest map. Ex. 1005, 2:45–50, 8:48–55, 9:20–39,

Figs. 6–7; *see* Ex. 1003 ¶¶ 69, 87, 107, 132. For example, Phillips’s interest-mapping system 130 may generate a heat map, i.e., “a representation of the web page overlaid with information indicative of the areas at which persons in a group of users paused for a predetermined period of time when viewing” the web page. Ex. 1005, 9:26–30, Fig. 7; *see id.* at 2:48–50, 9:48–61; Ex. 1003 ¶¶ 69, 87, 107, 132. A web page map comprising “a plurality of distinct areas within the web page” that provides a foundation for an interest map, e.g., a heat map, serves as a “reference layout.” *See* Ex. 1001, 8:2–44, Fig. 4; Ex. 1003 ¶¶ 62, 106–107, 118, 127; Ex. 1030, 204, 206, 212, 215 (equating a “reference layout” to a web page with no user interaction information on it).

Also, as Petitioner asserts, Zambonini discloses reports “displayed to the user in an image which overlays the web page in question,” such as heat maps that “graphically show the volume and location of clicks on the web page.” Ex. 1006, 27, 31–32, Fig. 13; *see* Ex. 1003 ¶ 135; Pet. 33. The “web page in question” that provides a foundation for an overlay in a report serves as a “reference layout.” *See* Ex. 1001, 8:2–44, Fig. 4; Ex. 1030, 204, 206, 212, 215 (equating a “reference layout” to a web page with no user interaction information on it).

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach limitation [1c]. Patent Owner’s contentions to the contrary lack merit.

(e) Limitation [1d]

Claim 1 recites the following limitation:

generating, based on the browsing activity information and the page information, an exposure map at a page view level, wherein the exposure map indicates a salience of each area of

a page-view of [sic] based on the page displayed on the client device and visited by the user, wherein the page-view is characterized by a page-view layout mapped to overlay the reference layout, wherein the page-view layout includes at least one visible area of the displayed page, and wherein each area of a page-view is less than the entirety of the page.

Ex. 1001, 11:1–11.

Citing Phillips and Zambonini, Petitioner asserts that the Phillips-Zambonini combination would have accomplished limitation [1d]. Pet. 34–35 (citing Ex. 1005, 1:16–51, 2:48–3:3, 3:33–64, 4:64–5:67, 6:1–8:64, 9:20–11:6, Figs. 1, 3–5, 7–9; Ex. 1006, 2, 6, 11, 27–29, 38, 41, 47, Fig. 5); *see* Ex. 1003 ¶¶ 137–147. In particular, Petitioner contends that Phillips’s interest-mapping system 130 “receives, ‘from one or more of the computing devices 100A–100N,’ browsing activity information and page information in the form of ‘scroll position data 122, device configuration data 124,’ and ‘other information . . . that may be relevant to the determination of areas of interest on a web page.’” Pet. 35 (alteration by Petitioner) (quoting Ex. 1005, 7:23–27). Petitioner also contends that interest-mapping system 130 uses the received information “to generate ‘interest maps’ by identifying ‘for each computing device 100, one or more scroll positions that are maintained for at least a predetermined period of time.’” *Id.* (quoting Ex. 1005, 7:56–60). Petitioner identifies Phillips’s Figure 7 as “an example exposure map generated through this process in the form of a ‘heat map’ that is a representation of a ‘web page overlaid with information indicative of the areas at which . . . users paused for a predetermined period of time when viewing the webpage.’” *Id.* at 35–36 (alteration by Petitioner) (emphasis omitted) (quoting Ex. 1005, 9:27–30).

Further, Petitioner asserts that “Phillips explains that ‘[t]he techniques described herein determine areas of interest on a web page . . . based [on] the time a user spends in various scroll positions on the page.’” Pet. 16 (alterations by Petitioner) (emphasis omitted) (quoting Ex. 1005, 5:64–67); *see id.* at 21–22 (citing Ex. 1003 ¶¶ 100–108; Ex. 1005, 2:61–3:3, 5:64–67, codes (54), (57)). Petitioner asserts that Phillips’s techniques provide “an indication of a duration of time by measuring whether a user viewed a web page for one or more predetermined periods of time.” Reply 9 n.3 (emphasis omitted) (citing Ex. 1043 ¶¶ 27–30, 64–67); *see id.* at 23–24 (citing Ex. 1005, 11:27–46; Ex. 1043 ¶¶ 64–65). Petitioner also asserts that an ordinarily skilled artisan would have recognized that Phillips’s techniques could generate a pageview-level exposure map, i.e., an exposure map of “a single user’s interaction with a web page during a single browsing session.” Pet. 16–17; *see id.* at 18–20, 37.

In addition, Petitioner contends that Phillips discloses that “a web page typically requires ‘more screen space than is available for a particular display,’ such that ‘only a portion of [the] web page’ may be displayed at any given time.” Pet. 37 (alteration by Petitioner) (quoting Ex. 1005, 4:61–64). Based on that disclosure, Petitioner asserts that a pageview-level exposure map according to the combined disclosures in Phillips and Zambonini would have included “at least one visible area of the displayed page” where “each area of a page-view is less than the entirety of the page” according to limitation [1d]. *Id.* (citing Ex. 1003 ¶ 142; Ex. 1005, 3:33–4:67, 5:13–45, Figs. 1–3).

Patent Owner disputes that the combined disclosures in Phillips and Zambonini teach limitation [1d] for three independent reasons. *See Resp.*

27–44; Sur-reply 1–3, 7–13. First, Patent Owner argues that Phillips and Zambonini do not disclose or suggest “generating . . . an exposure map at a page view level,” i.e., an exposure map of a single user’s interaction with a web page during a single visit to the web page. *See* Resp. 27–33; *see id.* at 17–18; Sur-reply 8–11. Specifically, Patent Owner asserts that “Phillips does not disclose or suggest any per-user or per-visit interest map, and the frequency values and corresponding interest maps in Phillips are only taught to be generated based on data collected for a plurality of users.” Resp. 27–28 (citing Ex. 2007 ¶ 99); *see id.* at 36; Sur-reply 8–10. Similarly, Patent Owner asserts that the “only interest maps disclosed by Phillips result from an aggregation” of scroll-position and pause-time data “from a plurality of users who visited a webpage.” Resp. 27 (citing Ex. 1005, 3:13–19, 3:27–31, code (57)); *see id.* at 31–32 (citing Ex. 1005, 6:23–35; Ex. 2007 ¶ 108); Sur-reply 8–10.

Additionally, Patent Owner contends that Zambonini’s heat maps are (1) “based on the locations clicked by a plurality of users,” (2) “limited to a plurality of users,” and (3) “the same as the heat maps in Phillips, in that both aggregate data from multiple users.” Resp. 37 (citing Ex. 1006, 22–23, 28; Ex. 2007 ¶ 115; Ex. 2009, 232:17–22); *see id.* at 31; Sur-reply 2–3. Patent Owner concedes that Zambonini’s click-stream reports are “capable of being generated per-user.” Resp. 31; *see id.* at 38; Sur-reply 2–3. But Patent Owner contends that “Petitioner fails to provide any explanation on how Zambonini’s URI route and click data” in a click-stream report “could create a per-user exposure map in the context of the frequency and salience calculation disclosed in Phillips.” Resp. 38 (emphasis omitted); *see id.* at 31–32; Sur-reply 2–3, 11, 24.

Second, Patent Owner argues that Phillips and Zambonini do not disclose or suggest an “exposure map indicat[ing] a salience of each area of a page-view” based on the “page displayed on the client device and visited by the user.” *See* Resp. 28–29, 32–33, 39–42; Sur-reply 7, 11–12. Specifically, Patent Owner asserts that a Phillips interest map indicates “*whether* a webpage area was viewed” but not “*how long* any particular user (or number of users) viewed any webpage area.” Resp. 29 (emphases by Patent Owner); *see id.* at 39–41; Sur-reply 11. Patent Owner asserts that a Phillips interest map for a single user “will not have any meaning” because “the frequency calculation” for a single user “is a binary value” (either 0 or 1) indicating whether that “user does or does not pause over a particular scroll position for the threshold predetermined period of time.” Resp. 28 (citing Ex. 1005, 10:28–29; Ex. 2007 ¶ 100; Ex. 2009, 204:14–17, 314:4–9); *see id.* at 2, 29, 38, 40–41; Sur-reply 1, 5, 7, 12. Patent Owner also asserts that “the salience in Phillips is not correlated with, and does not reflect any, duration of webpage area exposure, let alone duration for a single user.” Resp. 40 (emphasis omitted); *see id.* at 29; Sur-reply 1–2, 11–12.

Patent Owner admits that Phillips discloses that “there can be multiple settings for predetermined periods of time.” Resp. 41 (citing Ex. 1005, 11:19–24). But Patent Owner asserts that regardless of the “process for selecting different threshold periods of time, the salience determined by Phillips’ system still will not reflect any actual exposure duration because it would still be determined based on preset thresholds.” *Id.* (citing Ex. 2007 ¶ 122).

Additionally, Patent Owner contends that Zambonini does not “cure these deficiencies in Phillips” because Zambonini “simply does not

contemplate, record, or transmit any information regarding any exposure of any webpage area, let alone duration of exposure or salience as claimed.”

Resp. 42 (citing Ex. 2007 ¶ 124); *see id.* at 32–33. Patent Owner also contends that Zambonini’s click-stream reports (1) “simply show one or more users’ navigation to different webpages based on interaction data (i.e., clicks)” and (2) “do not reflect exposure or duration.” *Id.* at 32 (emphasis omitted).

Third, Patent Owner argues that Phillips and Zambonini do not disclose or suggest “a page-view layout mapped to overlay the reference layout.” *See* Resp. 42–44; Sur-reply 12–15. Specifically, Patent Owner asserts that Petitioner identifies web page map 149 in Phillips as the claimed reference layout but does not identify “any disclosure or suggestion in its proposed combination for the claimed page-view layout.” Resp. 43; *see* Sur-reply 14–15. Patent Owner also asserts that “Petitioner’s proposed combination simply is silent with respect to any page-view layout overlaid on the webpage map, which Petitioner asserts discloses the reference layout” required by claim 1. Resp. 44; *see* Sur-reply 14–15.

For the reasons explained below, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach limitation [1d]. *See* Pet. 34–38; Reply 7–9, 12–13; Ex. 1003 ¶¶ 137–147; Ex. 1043 ¶¶ 21–30, 36–37.

(i) Generating an Exposure Map at a Page View Level

Phillips teaches the portion of limitation [1d] that recites “generating, based on the browsing activity information and the page information, an exposure map at a page view level.” *See* Ex. 1003 ¶¶ 137–141; Ex. 1043 ¶¶ 22, 25–26; Ex. 2009, 309:2–20, 310:2–11, 326:3–8. Specifically,

Phillips's interest-mapping system 130 receives “from one or more of the computing devices 100A–100N” scroll position data 122, device configuration data 124, and other information “that may be relevant to the determination of areas of interest on a web page.” Ex. 1005, 7:10–11, 7:23–28, 7:54–56, Fig. 5; *see id.* at 8:20–47; Ex. 1003 ¶¶ 60–61, 105, 112–113, 118. After receiving the information, interest-mapping system 130 analyzes the information to “identify, for each computing device 100, one or more scroll positions that are maintained for at least a predetermined period of time.” Ex. 1005, 7:56–60; *see id.* at 8:12–16, code (57); Ex. 1003 ¶¶ 61, 68. After analyzing the information, interest-mapping system 130 generates an interest map for a web page. Ex. 1005, 1:45–51, 2:45–50, 7:28–38, 8:48–55, 9:20–42, 9:62–65, Figs. 6–7; *see id.* at 8:16–19, 10:28–37, code (57); Ex. 1003 ¶¶ 96, 105, 114, 137–140. Interest-mapping system 130 may generate an interest map as a heat map, histogram, graph, table, bar graph, or “other numerical or graphical representation for displaying areas of a web page at which users paused for at least a predetermined period of time.” Ex. 1005, 1:47–51, 2:45–50, 7:35–38, 8:48–55, 9:20–24, 9:62–65, 10:36–37, Figs. 6–7; *see id.* at 8:16–19; Ex. 1003 ¶¶ 58, 69–70, 107.

An ordinarily skilled artisan would have recognized that Phillips's techniques would generate a pageview-level exposure map, i.e., an exposure map of a single user's interaction with a web page during a single visit to the web page. *See* Ex. 1003 ¶¶ 86–89, 140–142; Ex. 1043 ¶¶ 22, 25–26; Ex. 2009, 326:3–8. Phillips explains that Figure 7's example interest map is “a representation of the web page overlaid with information indicative of the areas at which persons in **a group of users** paused for a predetermined

period of time when viewing” the web page. Ex. 1005, 9:26–30, 9:40–42 (emphasis added); *see* Ex. 1003 ¶¶ 69, 87, 107, 132, 140. But Phillips also explains that “[t]he techniques described herein determine areas of interest on a web page . . . based [on] the time **a user** spends in various scroll positions on the page.” Ex. 1005, 5:64–67 (emphasis added); *see id.* at code (57); Ex. 1003 ¶¶ 86, 100; Ex. 2009, 309:12–15. Phillips similarly explains that “[t]he systems and/or methods described herein determine areas of interest on a web page . . . based on the time **a user** spends in various scroll positions on the page.” Ex. 1005, 2:61–64 (emphasis added); *see* Ex. 1003 ¶¶ 84, 100.

Additionally, Phillips discloses identifying “one or more areas of the web page” corresponding to “those areas at which **one** or more users paused for at least the predetermined period of time.” Ex. 1005, 10:21–27, Fig. 8 (emphasis added); *see* Ex. 1003 ¶ 88. Phillips also discloses that interest-mapping system 130 may generate an interest map with data received from “one” computing device of “one” user. Ex. 1005, 7:23–28, 7:54–56; *see id.* at 2:61–64, 7:28–38, 8:20–47, 9:20–42, Figs. 5–7; Ex. 1003 ¶¶ 61, 86, 88, 105, 112, 118, 138; Ex. 1043 ¶ 25. As Dr. Cooperstock testifies, “Phillips deals with, in many instances, a single user.” Ex. 2009, 309:14–15; *see id.* at 326:3–8.

The Institution Decision discusses Phillips’s express disclosure about determining areas of interest on a web page based on “the time **a user** spends in various scroll positions on the page” and generating an interest map with data received from “one” computing device of “one” user. Inst. Dec. 17, 46–47 (emphasis in original).

In the Response, Patent Owner fails to address that express disclosure in Phillips. *See, e.g.*, Resp. 27–44. In the Reply, Petitioner points out the Institution Decision’s discussion of that express disclosure in Phillips. Reply 1–2 (citing Inst. Dec. 46–47). In the Sur-reply, Patent Owner concedes that “Phillips discloses ‘[t]he techniques described herein determine areas of interest on a web page or other information resource based [on] the time a user spends in various scroll positions on the page.’” Sur-reply 8 (alterations by Patent Owner) (quoting Ex. 1005, 5:64–67). But Patent Owner contends that “this teaching does not reference the generation of an interest map.” *Id.* That contention fails to identify a deficiency in Phillips because Phillips discloses using “[t]he techniques described herein” to generate an interest map. *See* Ex. 1005, 2:61–3:31, 5:13–6:52, 7:10–11:17, Figs. 2–4, 6–9. An ordinarily skilled artisan would evaluate a reference “for everything it *teaches* by way of technology.” *See EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985) (emphasis by the court).

In the Sur-reply, Patent Owner asserts that an area-of-interest determination “itself is insufficient” to generate an interest map for a web page. Sur-reply 8. That assertion fails to identify a deficiency in Phillips because Phillips discloses how to use an area-of-interest determination together with page information to generate an interest map for a web page. *See* Ex. 1005, 5:13–6:52, 7:10–11:17, Figs. 2–4, 6–9.

For these reasons, Phillips discloses generating an interest map of a single user’s interaction with a web page during a single visit to the web page similar to Figure 7’s example interest map for “a group of users.” Ex. 1005, 7:23–28, 7:54–56, 10:21–27; *see id.* at 2:61–64, 5:64–67, 7:28–38,

9:20–42, code (57), Fig. 7; *see* Ex. 1003 ¶¶ 86–87, 89, 141; Ex. 1043 ¶¶ 22, 25–26; Ex. 2009, 309:2–20, 310:2–11, 326:3–8. As Dr. Cooperstock testifies, “[t]here is nothing in Phillips that explicitly limits what’s shown, for example, in [F]igure 7 as somehow excluding the possibility that [w]hat’s generated by collecting the visit information of a single user. The exact same steps would apply in dealing with a single user.” Ex. 2009, 309:2–7; *see* Ex. 1043 ¶ 26. As Dr. Cooperstock also testifies, an ordinarily skilled artisan “would readily have understood that what steps Phillips is describing could have been implemented for characterizing the interest of a single user.” Ex. 2009, 310:7–11; *see* Ex. 1043 ¶ 26. Hence, an ordinarily skilled artisan would have recognized that Phillips’s techniques would “generat[e] . . . an exposure map at a page view level” according to limitation [1d]. *See* Ex. 1003 ¶¶ 86–89, 138–141; Ex. 1043 ¶¶ 22, 25–26.

Patent Owner acknowledges that an ordinarily skilled artisan would have recognized that Phillips’s techniques would generate an interest map for a “plurality” of users. *See* Resp. 27–29, 32–33, 38, 40, 43; Sur-reply 7–10. A “plurality” means “more than one,” e.g., two. *August Tech. Corp. v. Camtek, Ltd.*, 655 F.3d 1278, 1286 (Fed. Cir. 2011). Hence, Patent Owner argues in essence that an ordinarily skilled artisan would have implemented Phillips’s techniques twice to generate an interest map for two users but would not have implemented Phillips’s techniques only once to generate an interest map for only one user. That argument lacks merit. “The exact same steps would apply in dealing with a single user.” Ex. 2009, 309:6–7; *see* Ex. 1043 ¶ 26.

Additionally, Zambonini discloses a per-user and per-visit interest map, i.e., a click-stream report. *See* Ex. 1006, 27–28, 36, Fig. 20; Ex. 1003

¶ 213; Ex. 1043 ¶ 74. Zambonini describes a click-stream report as “a visualisation of **one** or more website visitors’ path through the website.” Ex. 1006, 36 (emphasis added); *see* Ex. 1003 ¶ 213; Ex. 2009, 249:5–7. Zambonini expressly states that a click-stream report may show “a single visitor’s path through the website” along with “summary statistics for the page being reported.” Ex. 1006, 27–28, 36; *see* Ex. 1003 ¶ 213. Zambonini generates a click-stream report from click data relating to “the URI a visitor navigated from to arrive and the web page where a current click occurred” and “the URI of the element the visitor clicked on,” i.e., “where the visitor navigated to.” Ex. 1006, 36.

As discussed above, Patent Owner contends that “Petitioner fails to provide any explanation on how Zambonini’s URI route and click data” in a click-stream report “could create a per-user exposure map in the context of the frequency and salience calculation disclosed in Phillips.” *See* Resp. 38 (emphasis omitted); *supra* § III.D.3(e). But an obviousness analysis should consider what “the combined teachings of the references would have suggested to those of ordinary skill in the art,” not “whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *see* Reply 2–3, 11–12 (citing *Keller*). Here, “the combined teachings of the references would have suggested” a per-user and per-visit interest map because Zambonini’s disclosure about generating a per-user and per-visit interest map bolsters Phillips’s disclosure about generating an interest map with data received from “one” computing device of “one” user. *See* Ex. 1005, 2:61–64, 5:64–67, 7:23–38, 7:54–56, 9:20–42, 10:21–27, code (57), Figs. 7–8; Ex. 1006, 27–28, 36, Fig. 20.

(ii) The Exposure Map Indicates a Salience of Each Area

Phillips teaches the portion of limitation [1d] that recites “wherein the exposure map indicates a salience of each area of a page-view” based on the “page displayed on the client device and visited by the user.” *See* Ex. 1003 ¶¶ 69, 132, 137–140, 146; Ex. 1043 ¶¶ 28–29, 64–66. In particular, Phillips describes a heat map as “a representation of the web page overlaid with information indicative of” areas of interest on the web page. Ex. 1005, 9:26–30, 9:48–52; *see id.* at 2:48–50, Fig. 7; Ex. 1003 ¶ 69. The “information indicative of” areas of interest on the web page may include different hatchings (e.g., crosshatching, right-leaning hatching, vertical hatching) and different colors (e.g., red, orange, blue). Ex. 1005, 9:26–39, 9:52–57, Fig. 7; *see* Ex. 1003 ¶¶ 69, 132. For instance, crosshatching overlaid on the web page may denote areas where “users paused most frequently.” Ex. 1005, 9:30–34, Fig. 7; *see* Ex. 1003 ¶¶ 69, 132. Further, right-leaning hatching overlaid on the web page may denote areas of secondary interest to users, and vertical hatching overlaid on the web page may denote areas of tertiary interest to users. Ex. 1005, 9:36–39, Fig. 7; *see* Ex. 1003 ¶¶ 69, 132.

According to Patent Owner, applying Phillips’s frequency-mapping technique to a single user’s interaction with a web page during a single visit to the web page would have resulted in a meaningless interest map indicating whether that user “does or does not pause over a particular scroll position for the threshold predetermined period of time.” *See* Resp. 28; Sur-reply 12. But the resulting interest map would have “indicate[d] a salience of each area” as we have construed “salience” because it would have indicated either minimal or more-than-minimal “user interaction or

activity” with each area of the web page. *See* Ex. 1005, 11:3–17; Ex. 1043 ¶¶ 28, 66; *supra* § III.C.2.

Patent Owner’s argument that Phillips and Zambonini do not disclose or suggest an “exposure map indicat[ing] a salience of each area of a page-view” based on the “page displayed on the client device and visited by the user” rests on its proposed construction of “salience” as meaning “a graphical indication of the timespan of exposure of a webpage area.” *See* Resp. 16–17, 28–29, 32–33, 39–42; Sur-reply 6–7, 11–12. For the reasons discussed above, we decline to adopt Patent Owner’s proposed construction. *See supra* § III.C.2.

Additionally, as Petitioner points out, Phillips discloses other techniques for graphically representing user interest. *See* Reply 23–24 (citing Ex. 1005, 11:27–46; Ex. 1043 ¶¶ 64–65); *see also id.* at 9 n.3. In particular, Phillips explains that “more than one predetermined period of time may be used” to determine and show user interest. Ex. 1005, 11:27–32, 11:37–46; *see* Ex. 1043 ¶¶ 29, 64–65. Phillips notes that a shorter time period may indicate “a relatively lesser degree of interest in a particular area,” while longer time periods may indicate “relatively greater interest in an area.” Ex. 1005, 11:32–37; *see* Ex. 1043 ¶ 65. For instance, a first time period  $t_1$  may denote “a first degree of interest in an area of a web page” and additional time periods  $t_2$ ,  $t_3$ , through  $t_n$  may denote “other degrees of interest in an area of a web page.” Ex. 1005, 11:28–32, 11:39–43; *see* Ex. 1043 ¶ 65. Consistent with the multiple-time-periods technique, Phillips discloses determining “the amount of time that each area is displayed on a user’s computing device” for “each location/area on the web page.” Ex. 1005, 6:30–33; *see* Ex. 1003 ¶¶ 169, 201.

Applying Phillips’s multiple-time-periods technique to a single user’s interaction with a web page during a single visit to the web page would have resulted in an interest map indicating different timespans of exposure for different areas of the web page. *See* Ex. 1005, 11:27–46; Ex. 1043 ¶ 65.

Using three time periods  $t_1$ ,  $t_2$ , and  $t_3$  as an example where  $t_1$  has a range less than 3.0 seconds,  $t_2$  has a range from 3.0 to 10.0 seconds, and  $t_3$  has a range greater than 10.0 seconds, a nine-area interest map for a single user’s interaction with a web page during a single visit to the web page could indicate different timespans of exposure for different areas of the web page as follows:

|       |       |       |
|-------|-------|-------|
| $t_1$ | $t_1$ | $t_2$ |
| $t_1$ | $t_2$ | $t_2$ |
| $t_2$ | $t_2$ | $t_3$ |

The above interest map, created for this Decision to illustrate the above example, shows three areas denoted as  $t_1$  with no background shading, five areas denoted as  $t_2$  with lighter-gray background shading, and one area denoted as  $t_3$  with darker-gray background shading.

For these reasons, Phillips teaches “wherein the exposure map indicates a salience of each area of a page-view” based on the “page displayed on the client device and visited by the user.” *See* Ex. 1003 ¶¶ 137–140, 146; Ex. 1043 ¶¶ 64–66; *supra* § III.C.2.

(iii) A Page-View Layout Mapped to Overlay the Reference Layout

Phillips teaches the portion of limitation [1d] that recites “wherein the page-view is characterized by a page-view layout mapped to overlay the reference layout.” *See* Ex. 1003 ¶¶ 137–140; Ex. 1043 ¶¶ 36–37.

Specifically, Phillips’s interest-mapping system 130 generates an interest map for a web page after receiving and analyzing scroll position data 122, device configuration data 124, and other information “that may be relevant to the determination of areas of interest on a web page.” Ex. 1005, 1:45–51, 2:45–50, 7:10–11, 7:28–38, 7:54–60, 8:48–55, 9:20–42, 9:62–65, Figs. 6–7; *see id.* at 8:12–19, 10:28–37, code (57); Ex. 1003 ¶¶ 60–61, 68, 96, 105, 112–114, 118, 137–140. Interest-mapping system 130 generates an interest map “by mapping areas of a page visibly displayed on a client device to overlay corresponding areas of the page delineated in” a web page map, i.e., web page map 149. Ex. 1003 ¶ 140 n.11; Ex. 1043 ¶ 37.

As discussed above, Patent Owner asserts that Petitioner identifies web page map 149 in Phillips as the claimed reference layout but does not identify “any disclosure or suggestion in its proposed combination for the claimed page-view layout.” *See* Resp. 43; *supra* § III.D.3(e). But Petitioner identifies Phillips’s Figure 7 as “an example exposure map generated” by interest-mapping system 130 that illustrates “a page-view layout mapped to overlay the reference layout.” *See* Pet. 35–36; Ex. 1003 ¶ 140. An ordinarily skilled artisan would have understood that interest-mapping system 130 “overlays a page-view layout to the reference layout,” i.e., web page map 149. Ex. 1043 ¶ 37; *see* Ex. 1003 ¶ 140 n.11. In Figure 7, a page-view layout containing crosshatching, right-leaning hatching, and

vertical hatching overlays a reference layout. *See* Ex. 1003 ¶¶ 69, 87, 107, 132, 139–140; Ex. 1005, 9:20–39, Fig. 7; Ex. 1043 ¶ 37.

In the Sur-reply, Patent Owner asserts that Petitioner changes position in the Reply by “disavow[ing] that the webpage map of Phillips can disclose the reference layout of the claims.” Sur-reply 13–14 (citing Reply 12–13). That assertion lacks merit. Petitioner consistently identifies Phillips’s web page map 149 as “the reference layout of the claims.” *See* Pet. 28–38; Reply 12; Ex. 1003 ¶¶ 126–147; Ex. 1043 ¶ 37.

For these reasons, Phillips teaches “wherein the page-view is characterized by a page-view layout mapped to overlay the reference layout.” *See* Ex. 1003 ¶¶ 137–140; Ex. 1043 ¶ 37.

(iv) The Page-View Layout Includes at Least One Visible Area and Each Area Is Less Than the Entirety of the Page

Phillips teaches the portion of limitation [1d] that recites “wherein the page-view layout includes at least one visible area of the displayed page, and wherein each area of a page-view is less than the entirety of the page.” *See* Ex. 1003 ¶¶ 63–64, 137, 142–145. Specifically, Phillips explains that “the display dimensions of each user computing device 100A–100N may affect the amount of the web page” presented on “the corresponding ‘rectangle’ of” each computing device’s display. Ex. 1005, 7:63–66; *see* Ex. 1003 ¶ 63. So a web page “may require more screen space than is available” on a computing device’s display. Ex. 1005, 4:61–63; *see* Ex. 1003 ¶ 64. Phillips also explains that the “scroll positions associated with a web page” are “associated with displayed ‘rectangles.’” Ex. 1005, 6:1–4; *see* Ex. 1003 ¶ 168. Hence, interest-mapping system 130 determines “the displayed portion of the web page” based on “the scroll position data 122 and the

device configuration data 124 received from the computing device.”

Ex. 1005, 7:67–8:3; *see id.* at 8:20–47; Ex. 1003 ¶ 63. Thus, “the displayed portion of the web page” on a computing device includes “at least one visible area of the displayed page” where “each area of a page-view is less than the entirety of the page” according to limitation [1d]. *See* Ex. 1003 ¶¶ 142–146.

(v) Summary for Limitation [1d]

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach limitation [1d]. Patent Owner’s arguments to the contrary lack merit.

(f) Alleged Reasons for Combining the Teachings of the References

Petitioner asserts that an ordinarily skilled artisan would have been motivated to combine Zambonini’s teachings with Phillips’s teachings to (1) “further Phillips’s stated goal of ‘help[ing] analysts to determine whether users are viewing or scanning the page efficiently or in the manner intended by the web page designers’” and (2) provide “other advantages.” Pet. 19 (alteration by Petitioner) (quoting Ex. 1005, 10:1–4); *see id.* at 16–18. For instance, Petitioner asserts that an ordinarily skilled artisan “would have recognized that storing interest data with session ID, as taught by Zambonini, would enable Phillips’s system” to “generate exposure maps at page view, visitor, and page levels.” *Id.* at 19–20. Further, Petitioner asserts that the Phillips-Zambonini system would have “leverage[d] data including session ID to generate those maps at page view and visitor levels, in addition to the page level maps already described by Phillips.” *Id.* at 21.

To support Petitioner’s assertions, Dr. Cooperstock testifies that Zambonini discloses storing “the interaction data using the session ID,” e.g.,

in a session log comprising “data relating to a single user’s interaction with” a web page. Ex. 1003 ¶ 91 (citing Ex. 1006, 2–3, 5–6, 28). He also testifies that storing “the interaction data using the session ID” would have provided the following advantages:

- (1) “event data . . . can be linked together to provide insight regarding a single user’s interaction with” a web page;
- (2) “analysis of every visitor is possible, down to their individual route through the site and the actual locations that they clicked,” thus enabling a website administrator/analyst to identify “elements on the website that are of interest to visitors and those that are not”; and
- (3) enabling Phillips’s system to generate exposure maps at both (i) “a page view level by linking together scroll position data received from a single computing device during a single browsing session” and (ii) “a visitor level by linking together scroll position data received from a single computing device during multiple browsing sessions.”

*Id.* ¶¶ 91–92, 96 (emphases omitted) (citing Ex. 1006, 2–6, 26–28, 36–37, Figs. 4–5, 9, 11); Ex. 1043 ¶ 71.

Dr. Cooperstock also testifies that Zambonini discloses other techniques that “enable an analyst to quickly and easily gain insights regarding the interaction(s) of each individual user with the page being analyzed.” Ex. 1003 ¶ 97 (citing Ex. 1006, 3, 5–6, 28, 36–37); *see id.* ¶¶ 92–93. As an example, he identifies Zambonini’s disclosure that “[f]iltering of the reported data is advantageous because it permits the user to view . . . accurate and meaningful’ information regarding user activities.” *Id.* ¶ 92 (alterations by Dr. Cooperstock) (quoting Ex. 1006, 37). As another example, he identifies Zambonini’s disclosures that (1) “real-time graphical reporting” of the interaction data “is possible by viewing of the currently

stored interaction data” and (2) “real-time reports enable[] users to react extremely quickly if the desired results are not being achieved.” *Id.* ¶ 93 (quoting Ex. 1006, 2, 4, 37, code (57)).

In addition, Dr. Cooperstock explains that the above-identified advantages disclosed in Zambonini “would have motivated one skilled in the art to configure Phillips’s interest mapping system to generate exposure maps at page view, visitor, and page levels.” Ex. 1003 ¶ 94. He also explains that “one skilled in the art would have recognized that doing so would further Phillips’s stated goal of ‘help[ing] analysts to determine whether users are viewing or scanning the page efficiently or in the manner intended by the web page designers.’” *Id.* (alteration by Dr. Cooperstock) (quoting Ex. 1005, 10:1–4).

Patent Owner disputes that an ordinarily skilled artisan would have been motivated to combine Zambonini’s teachings with Phillips’s teachings. *See* Resp. 27–34; Sur-reply 2–4. Specifically, Patent Owner asserts that the references do “different types of data collections to create different mappings and different graphical outputs for different reasons based on different data.” Resp. 34 (citing Ex. 2007 ¶ 109); Sur-reply 3. Patent Owner asserts that the “only interest maps disclosed by Phillips result from an aggregation” of scroll-position and pause-time data “from a plurality of users who visited a webpage.” Resp. 27 (citing Ex. 1005, 3:13–19, 3:27–31, code (57)); *see id.* at 31–32 (citing Ex. 1005, 6:23–35; Ex. 2007 ¶ 108); Sur-reply 8–10.

Additionally, Patent Owner contends that Zambonini’s heat maps are (1) “based on the locations clicked by a plurality of users,” (2) “limited to a plurality of users,” and (3) “the same as the heat maps in Phillips, in that

both aggregate data from multiple users.” Resp. 37 (citing Ex. 1006, 22–23, 28; Ex. 2007 ¶ 115; Ex. 2009, 232:17–22); *see id.* at 31; Sur-reply 2–3.

Patent Owner contends that Zambonini’s click-stream reports result from user clicks when traversing web pages of a website and that the click data used to generate a click-stream report conflicts with the data used to generate a heat map. Resp. 32; *see id.* at 38; Sur-reply 2–3, 24. Patent Owner also contends that Zambonini’s click data representing “a user’s traversal across” web pages of a website is “incompatible with Phillips’ focus on areas of exposure for multiple users.” Sur-reply 3; *see id.* at 24.

Further, Patent Owner argues that “because of the different subject matter of the references,” an ordinarily skilled artisan “would not even have thought to look to Zambonini (absent impermissible hindsight) when those references are considered as a whole.” Sur-reply 3 (emphasis omitted). Patent Owner also argues that an ordinarily skilled artisan would have had no reason to use Zambonini’s session ID in Phillips’s system because “Zambonini is not concerned with any exposure of webpage areas, or any analytics relating to durations, and instead only records interactions (e.g., clicks).” Resp. 30 (emphases omitted); *see* Sur-reply 4.

We agree with Petitioner that an ordinarily skilled artisan would have had sound reasons, i.e., the reasons articulated by Dr. Cooperstock, to combine Zambonini’s teachings with Phillips’s teachings as Petitioner proposes. *See* Pet. 16–21; Reply 10–12; Ex. 1003 ¶¶ 84–97; Ex. 1043 ¶¶ 31–35. For example, Zambonini provides teachings that further Phillips’s stated objectives. *See, e.g.,* Ex. 1003 ¶¶ 70, 75, 91, 94; Ex. 1005, 10:1–5; Ex. 1006, 3, 16, 36–37.

Specifically, Phillips explains that the information presented in the “one or more interest maps” may help an analyst achieve the following objectives: (1) “determine whether users are viewing or scanning the page efficiently or in the manner intended by the web page designers” and (2) “determine whether users are getting the intended content from the web page.” Ex. 1005, 10:1–5; *see* Ex. 1003 ¶¶ 70, 94, 104.

Zambonini explains that storing “the interaction data using the session ID” advantageously links all of the data about a single user’s interaction with a web page. Ex. 1006, 3; *see* Ex. 1003 ¶¶ 75, 91. Zambonini also explains that linking all of the data about a single user’s interaction with a web page advantageously provides a website administrator with “insight into how” each user interacts with the web page, e.g., by allowing the website administrator to view every interaction event. Ex. 1006, 3, 16, 36; *see* Ex. 1003 ¶¶ 75, 91; Ex. 1043 ¶ 74. Hence, “analysis of every visitor is possible, down to their individual route through the site and the actual locations that they clicked.” Ex. 1006, 36–37; *see* Ex. 1003 ¶¶ 83, 92. Zambonini additionally explains that “real-time graphical reporting” of the interaction data “is possible by viewing of the currently stored interaction data” and that “real-time reports enable[] users to react extremely quickly if the desired results are not being achieved.” Ex. 1006, 2, 4, 37, code (57); *see id.* at 10–11, 13, 17; Ex. 1003 ¶¶ 76, 93.

As Dr. Cooperstock testifies, “[t]hese and other advantages described by Zambonini would have motivated one skilled in the art to configure Phillips’s interest mapping system to generate exposure maps at page view, visitor, and page levels,” e.g., to “further Phillips’s stated goal of ‘help[ing] analysts to determine whether users are viewing or scanning the page

efficiently or in the manner intended by the web page designers.” Ex. 1003 ¶ 94 (alteration by Dr. Cooperstock) (quoting Ex. 1005, 10:1–4); *see id.* ¶¶ 96–97, 99; Ex. 1043 ¶¶ 32, 34.

Patent Owner’s arguments against combining the teachings of the references rest on its proposed construction of “salience” as meaning “a graphical indication of the timespan of exposure of a webpage area.” *See* Resp. 27–34; Sur-reply 2–4. For the reasons discussed above, we decline to adopt Patent Owner’s proposed construction. *See supra* § III.C.2. Patent Owner’s arguments against combining the teachings of the references also rest on its assertions that Phillips fails to disclose (1) an interest map for only one user and (2) an interest map indicating different timespans of exposure for different areas of the web page. *See* Resp. 27–34; Sur-reply 2–4. For the reasons discussed above, we disagree with Patent Owner’s assertions. *See supra* § III.D.3(e)(i)–(ii).

Patent Owner’s contention that Zambonini’s click data representing “a user’s traversal across” web pages of a website is “incompatible with Phillips’ focus on areas of exposure for multiple users” is argument unsupported by evidence. *See* Sur-reply 3, 24; *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) (“Attorney argument is no substitute for evidence.”). Patent Owner identifies no technical impediment that would have prevented an ordinarily skilled artisan from manipulating Zambonini’s click data in ways similar to Phillips’s scroll-position and pause-time data. *See* Sur-reply 3, 24.

Additionally, Zambonini notes that “the term ‘**click**’ represents **any user** selection of, or **interaction with**, icons/**elements** on the web page,” not just mouse clicks. Ex. 1006, 24 (emphases added); *see id.* at 5, 37; Ex. 1003

¶ 73 n.6. And Phillips discloses that elements on the web page, e.g., “an image,” “a hyperlink,” or “a defined amount of text,” may correspond to areas on the web page. Ex. 1005, 7:49–53; *see* Ex. 1003 ¶ 163. So Zambonini’s explanations about the advantages achieved by storing “the interaction data using the session ID” apply not only to Zambonini’s click data but also to Phillips’s scroll-position and pause-time data. *See* Ex. 1003 ¶¶ 75, 91–96; Ex. 1006, 3, 16, 36. Thus, we disagree with Patent Owner’s argument that an ordinarily skilled artisan would have had no reason to use Zambonini’s session ID in Phillips’s system because “Zambonini is not concerned with any exposure of webpage areas, or any analytics relating to durations, and instead only records interactions (e.g., clicks).” *See* Resp. 30 (emphases omitted).

(g) Conclusion About Obviousness/Nonobviousness for Claim 1

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach claim 1’s subject matter. *See supra* §§ III.D.3(a)–(e). Moreover, an ordinarily skilled artisan would have been motivated to combine Zambonini’s teachings with Phillips’s teachings as Petitioner proposes. *See supra* § III.D.3(f). Hence, Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable under § 103(a) as obvious over Phillips and Zambonini.

4. INDEPENDENT CLAIM 16

System claim 16 includes essentially the same limitations as method claim 1 but additionally requires (1) a “network interface” for performing the “receiving” limitations, (2) a “processor,” and (3) a “memory” storing instructions for performing the “creating” and “generating” limitations. *Compare* Ex. 1001, 10:56–11:11, *with id.* at 12:21–43.

Petitioner contends that claim 16 is unpatentable under § 103(a) as obvious over Phillips and Zambonini for essentially the same reasons as claim 1. *Compare* Pet. 21–38, *with id.* at 65–67. For claim 16’s “network interface,” Petitioner contends that Phillips discloses that “[c]omputing device 2 may . . . include [sic] network interface (not shown) to communicate with external devices (e.g., one or more servers, web servers) via one or more networks.” *Id.* at 65 (alterations by Petitioner) (emphases omitted) (quoting Ex. 1005, 5:10–12). Petitioner also contends that an ordinarily skilled artisan would have recognized that Phillips’s interest-mapping system 130 “would similarly use a network interface to communicate with the computing device via the internet.” *Id.* (citing Ex. 1003 ¶¶ 221–222).

For claim 16’s “processor,” Petitioner asserts that interest-mapping system 130 includes “one or more processors 140” that receive interest data “from one or more computing devices 100A–100N” to generate an interest map. Pet. 65–66 (quoting Ex. 1005, 7:12–15, 10:57–60). For claim 16’s “memory,” Petitioner asserts that interest-mapping system 130 includes “one or more types of computer memory . . . represented generally as computer readable medium.” *Id.* at 66 (alteration by Petitioner) (quoting Ex. 1005, 7:12–15).

Patent Owner makes the same patentability arguments for claim 16 as for claim 1. *See* Resp. 27–44; Sur-reply 1–15.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 16’s subject matter. *See* Pet. 21–38, 65–67; Ex. 1003 ¶¶ 100–147, 221–226; Ex. 1043 ¶¶ 21–30,

36–37. In short, for the reasons discussed above, the combined disclosures in Phillips and Zambonini teach claim 1’s subject matter, and thus teach the same subject in claim 16. *See* Ex. 1003 ¶¶ 100–147; Ex. 1043 ¶¶ 21–30, 36–37; *supra* §§ III.D.3(a)–(e). Further, Phillips teaches claim 16’s “network interface,” “processor,” and “memory.” *See* Ex. 1003 ¶¶ 222–225; Ex. 1005, 5:10–12, 7:12–15, 10:10–15, 10:49–52, 10:57–60, 12:13–31, Fig. 5. Moreover, an ordinarily skilled artisan would have been motivated to combine Zambonini’s teachings with Phillips’s teachings as Petitioner proposes. *See* Ex. 1003 ¶¶ 84–97; Ex. 1043 ¶¶ 31–35; *supra* § III.D.3(f). Hence, Petitioner has shown by a preponderance of the evidence that claim 16 is unpatentable under § 103(a) as obvious over Phillips and Zambonini.

#### 5. DEPENDENT CLAIMS 2 AND 17

Claim 2 depends from claim 1 and further requires “saving the generated exposure map at the page-view level in a storage device”; and “generating analytics data related to the at least a page visited by the user.” Ex. 1001, 11:12–16. Claim 17 depends from claim 16 and recites subject matter similar to claim 2’s “saving” step. *Id.* at 12:45–46.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 2 and 17. *See* Pet. 38–40, 67. Specifically, Petitioner asserts that Phillips “discloses that mapping system 130 may store ‘one or more interest maps 148’ in computer readable medium 142.” *Id.* at 39 (quoting Ex. 1005, 7:19–20); *see id.* at 67. Petitioner also asserts that Phillips “describes generating analytics data for the page visited by the user” in two ways: (1) “in the form of trend data ‘that may be generated for one or more areas of the web page’”; and (2) “in the

form of a histogram that tracks the amount of time each user spends on each particular area of the page” as shown in Phillips’s Figure 6. *Id.* at 39–40 (quoting Ex. 1005, 10:38–39).

Patent Owner makes no arguments specific to claims 2 and 17. *See, e.g.,* Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 2 and 17. *See* Pet. 38–40, 67; Ex. 1003 ¶¶ 148–154, 227.

#### 6. DEPENDENT CLAIMS 3 AND 18

Claim 3 depends from claim 1 and reads as follows (with formatting added for clarity):

3. The method of claim 1,
  - wherein the browsing activity information includes a pan/zoom data set and an element data set,
  - wherein the pan/zoom dataset contains information that relates to at least pan/zoom operations performed by the user on the client device and viewports,
  - wherein the element dataset contains information that relates to at least one element of the at least one page displayed on the client device,
  - wherein each viewport is a visible area less than the entirety of the page of the at least one page displayed on the client device at any given moment.

Ex. 1001, 11:17–26. Claim 18 depends from claim 16 and recites subject matter similar to claim 3. *Id.* at 12:47–56.

#### (a) Contentions in the Petition

Petitioner contends that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 3 and 18. *See* Pet. 40–44, 67.

Specifically, Petitioner asserts that Phillips’s interest-mapping system 130 receives “a pan/zoom data set” and “an element data set” because the system receives “scroll position data 122 and device configuration data 124” from a user computing device. *Id.* at 41–43.

(i) “Pan/Zoom Data Set”

Petitioner maps “a pan/zoom data set” to the following information in Phillips’s scroll position data 122 and device configuration data 124:

- (1) “vertical scroll position data”;
- (2) “horizontal scroll position data”;
- (3) “display screen dimensions”;
- (4) “display resolution”; and
- (5) “other display configuration data” that may affect “the particular information content that is displayed” on a screen.

Pet. 41–42 (citing Ex. 1005, 8:3–19).

(ii) “Element Data Set”

Petitioner maps “an element data set” to one or more areas of a web page identified in Phillips’s scroll position data 122 and device configuration data 124. Pet. 43–44. Petitioner asserts that an area of a web page may correspond to “an image,” “a hyperlink,” or “a defined amount of text (such as a word, phrase, sentence, and/or paragraph).” *Id.* at 43–44 (citing Ex. 1005, 7:49–51, 7:61–8:3). According to Petitioner, the ’645 patent “discloses that ‘[a]n element can be, for example, a paragraph of text, a link, an image, a button, or any document object module (DOM) element of the web page.’” *Id.* at 44 n.4 (alteration by Petitioner) (quoting Ex. 1001, 6:1–4).

Petitioner also maps “an element data set” to Zambonini’s “interaction data [that] includes event data relating to the single user’s interaction with” a web page, data such as a “key element positional co-ordinate,” a “key element ID to locate the key element,” and a “URI of a selected element.” Pet. 44 (alteration by Petitioner) (quoting Ex. 1006, 3, 7; citing Ex. 1006, 26–27).

(iii) “Visible Area Less Than the Entirety of the Page”

Further, Petitioner asserts that Phillips discloses that “the display dimensions of each user computing device 100A–100N may affect the amount of the web page . . . that is presented on the corresponding ‘rectangle’ of the respective displays 108A–108N.” Pet. 41 (alteration by Petitioner) (quoting Ex. 1005, 7:63–66). Petitioner also asserts that Phillips’s interest-mapping system 130 determines “the portion of a web page displayed on a particular device at any given time ‘based on the scroll position data 122 and the device configuration data 124 received from [that] computing device.’” *Id.* (alteration by Petitioner) (quoting Ex. 1005, 8:1–3). According to Petitioner, an ordinarily skilled artisan “would have understood this and related disclosure as describing viewports in the form of rectangles that are a visible area less than the entirety of the page of the at least one page displayed on the client device at any given moment.” *Id.* (citing Ex. 1003 ¶ 157; Ex. 1005, 4:64–5:45, 7:61–8:3, Figs. 1–4).

(b) Contentions in the Response

Patent Owner disputes that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 3 and 18. *See* Resp. 45–48. In particular, Patent Owner contends that “neither the scroll position data nor the device configuration data in Phillips encompasses the scope of pan/zoom

data as taught by the '645 Patent.” *Id.* at 46. Patent Owner also contends that “neither Phillips nor Zambonini even recite the word ‘zoom,’ much less information that relates to pan/zoom operations performed by a user on a client device.” *Id.* at 47.

Further, Patent Owner asserts that Phillips’s teachings about “vertical scroll position data,” “horizontal scroll position data,” “display screen dimensions,” “display resolution,” and “other display configuration data” do not “relate to any zoom functionality, let alone the pan/zoom dataset as described in the '645 Patent.” Resp. 46 (citing Ex. 1005, 8:4–12; Ex. 2007 ¶ 133). Patent Owner also asserts that “Phillips is silent with respect to the scroll position or device configuration data including any information regarding a zoom operation performed by a user.” *Id.* (citing Ex. 2007 ¶ 134).

(c) Contentions in the Reply

Petitioner responds by contending that the “pan/zoom data set” does not require any zoom functionality. Reply 13. Petitioner notes that claim 4 depends directly from claim 3 and recites “[t]he method of claim 3, wherein the pan/zoom dataset includes any of: a size of the page, a size of each viewport, a position of each viewport, a time period for which each viewport was active, and a layout in which a rendering engine renders the at least one page on the client device.” *Id.* (alteration by Petitioner) (emphases omitted) (quoting Ex. 1001, 11:27–31). Petitioner contends that claim 4’s option to include “a size of each viewport” in claim 3’s “pan/zoom dataset” relates to zoom data. *Id.* at 14. Petitioner also contends that claim 3’s “pan/zoom dataset” encompasses one (or more) of claim 4’s elements and does not

require each of claim 4's elements because claim 3 "cannot be narrower" than claim 4. *Id.*

(d) Contentions in the Sur-reply

Patent Owner contends that claim 4's option to include "a size of each viewport" in claim 3's "pan/zoom dataset" does not "restrict claim 3 from requiring information regarding" other "zoom operations." Sur-reply 16. Patent Owner also contends that nothing prevents narrower claim 4 from "requiring a specific type of" zoom functionality not required by broader claim 3. *Id.*

Further, Patent Owner asserts that it disavowed claim scope during the '645 patent's prosecution by arguing that "Appellants' pan/zoom data set relates to what the user did in terms of panning and zooming while [the] content set of Giambalvo is information used by [a] web page to present different views to the user."<sup>5</sup> Sur-reply 16 (alterations by Patent Owner) (emphasis omitted) (quoting Ex. 1002, 214).

Patent Owner also asserts that claim 18 does not stand or fall with claim 3 because Petitioner's position rests "entirely on claim 4's dependency from claim 3, and there is no equivalent dependency with respect to claim 18." Sur-reply 17.

(e) Analysis

We agree with Petitioner that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 3 and 18. *See* Pet. 40–44, 67; Reply 13–14; Ex. 1003 ¶¶ 155–166, 228; Ex. 1043 ¶¶ 38–40.

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<sup>5</sup> *See* U.S. Patent Application Publication No. 2011/0316884 A1, titled "Alternative Semantics for Zoom Operations in a Zoomable Scene," to Giambalvo et al. ("Giambalvo").

(i) “Pan/Zoom Data Set”

For the “pan/zoom data set” recited in claims 3 and 18, Phillips’s interest-mapping system 130 receives “from one or more of the computing devices 100A–100N” scroll position data 122, device configuration data 124, and other information “that may be relevant to the determination of areas of interest on a web page.” Ex. 1005, 7:10–11, 7:23–28, 7:54–56, Fig. 5; *see id.* at 8:20–47; Ex. 1003 ¶¶ 60–61, 105, 112–113, 118, 160.

Scroll position data 122 may include (1) “vertical scroll position data” and (2) “horizontal scroll position data” that corresponds to pan data. Ex. 1005, 8:4–5; *see* Ex. 1003 ¶¶ 113, 160.

Device configuration data 124 may include (1) “display screen dimensions,” (2) “display resolution,” and (3) “other display configuration data” that may affect “the amount of data or information viewable on the screen” or “the particular information content that is displayed at a particular scroll position on a particular device.” Ex. 1005, 8:6–12; *see* Ex. 1003 ¶¶ 113, 160. The “other display configuration data” that may affect “the amount of data or information viewable on the screen” or “the particular information content that is displayed” at least suggests zoom data. For example, the zoom level affects not only “the amount of data or information viewable on the screen” but also “the particular information content that is displayed.” *See* Ex. 1001, 6:17–20; Ex. 1002, 189–90, 238–39, 303–04, 342–43. As explained during the ’645 patent’s prosecution, “a user may zoom in to view a particular location at a higher size and visual resolution.” Ex. 1002, 190, 239, 304, 343.

But even if Phillips did not suggest zoom data, Phillips would still disclose “a pan/zoom data set” according to claims 3 and 18 because the

“pan/zoom data set” does not require zoom data. The claims use a slash between the words “pan” and “zoom.” Ex. 1001, 11:17–21, 12:47–51.

“A slash most commonly signifies alternatives.” The Chicago Manual of Style § 6.106 (2022). So the plain meaning of “pan/zoom data set” is “data for a pan or zoom.”

The ’645 patent’s specification and prosecution history do not warrant a departure from the plain meaning of “pan/zoom data set” to require both pan data and zoom data. The specification includes the following disclosure concerning the “pan/zoom data set”:

The pan/zoom data set includes the size of the web page downloaded to the user device; the size of a visible area on the client device 101 at any given moment (hereinafter ‘viewport’); the position of each viewport (e.g., position of scroll bars); a time period for which each viewport was active; and a layout in which the browser 102 attempted to render the web page.

Ex. 1001, 5:30–36. But “limitations are not to be read into the claims from the specification.” *Van Geuns*, 988 F.2d at 1184. Consistent with that principle, the specification explains that (1) “the embodiments disclosed are only examples” and (2) “statements made in the specification . . . do not necessarily limit any of the various claimed inventions.” Ex. 1001, 3:28–32; *see id.* at 10:40–45.

As for Patent Owner’s assertion that it disavowed claim scope during the ’645 patent’s prosecution, a prosecution statement does not disavow claim scope unless it is “so clear as to show reasonable clarity and deliberateness” and “so unmistakable as to be unambiguous evidence of disclaimer.” *See Genuine Enabling Tech. LLC v. Nintendo Co.*, 29 F.4th 1365, 1374 (Fed. Cir. 2022); *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325 (Fed. Cir. 2003). “In determining whether a clear and

unambiguous disclaimer attaches to particular claim language, it is important to consider the statements made by the applicant both in the context of the entire prosecution history and the then-pending claims.” *Mass. Inst. of Tech. v. Shire Pharm., Inc.*, 839 F.3d 1111, 1120 (Fed. Cir. 2016). The prosecution statement that Patent Owner identifies as disavowing claim scope is not “so unmistakable as to be unambiguous evidence of disclaimer” when considered in the context of the entire prosecution history and Patent Owner’s other arguments distinguishing the then-pending claims from the prior art. *See* Sur-reply 16 (citing Ex. 1002, 214); Ex. 1002, 167–68, 211–14, 267–68.

In particular, when distinguishing application claim 3 from Giambalvo, Patent Owner repeatedly and consistently argued that the “pan/zoom data set” relates to “operations performed by the user” in contrast to Giambalvo’s disclosure of different visual presentations or content sets for different zoom levels. Ex. 1002, 167–68, 211–12, 214, 267–68. At one point, Patent Owner also argued that the “pan/zoom data set” relates to “what the user did in terms of panning and zooming while [the] content set of Giambalvo is information used by [a] web page to present different views to the user.” *Id.* at 214. Considered in their entirety, however, Patent Owner’s arguments repeatedly and consistently centered on the source of the “pan/zoom data set” differing from Giambalvo, i.e., the “operations performed by the user,” not the content of the “pan/zoom data set” differing from Giambalvo. *See id.* at 167–68, 211–12, 214, 267–68.

Thus, the prosecution statement that the “pan/zoom data set” relates to “what the user did in terms of panning and zooming” does not override Patent Owner’s repeated and consistent assertions that the “pan/zoom data

set” relates to “operations performed by the user.” Nor does that prosecution statement clearly and unambiguously narrow the “pan/zoom data set” to require both pan data and zoom data. Moreover, narrowing the “pan/zoom data set” to require both pan data and zoom data would not have distinguished over Giambalvo because Giambalvo discloses both pan data and zoom data, i.e., pan data comprising “pan or rotate” information and zoom data comprising different visual presentations or content sets for different zoom levels. Ex. 1002, 167–68, 211–12, 214, 237, 267–68, 302, 341–42, 373.

Because the “pan/zoom data set” does not require zoom data, that data set would encompass Phillips’s scroll position data 122 and device configuration data 124 even if Phillips did not suggest zoom data. *See* Ex. 1003 ¶¶ 113, 160–161; Ex. 1005, 7:23–28, 8:4–12.

Although Patent Owner asserts that claim 18 does not stand or fall with claim 3 because Petitioner’s position rests “entirely on claim 4’s dependency from claim 3, and there is no equivalent dependency with respect to claim 18,” Patent Owner identifies nothing in the intrinsic evidence suggesting that the same term appearing in claims 3 and 18 should have different meanings. *See* Sur-reply 15–17.

(ii) “Element Data Set”

For the “element data set” recited in claims 3 and 18, Phillips’s interest-mapping system 130 analyzes scroll position data 122 and device configuration data 124 to identify “one or more areas of a web page,” e.g., “an image,” “a hyperlink,” or “a defined amount of text (such as a word, phrase, sentence, and/or paragraph),” associated with each scroll position. Ex. 1005, 7:49–53, 8:12–16; *see* Ex. 1003 ¶¶ 128, 162–163. The identified

web-page areas correspond to the “element data set.” Ex. 1003 ¶¶ 163–164; *see* Ex. 1001, 6:1–4.

Additionally, the “element data set” encompasses Zambonini’s interaction data. Ex. 1006, 2–3, 6–7, 12, 16, 24, 26–27; *see* Ex. 1003 ¶ 165; Ex. 1043 ¶ 48. In particular, Zambonini’s interaction data includes event data “relating to the single user’s interaction with” a web page, and the event data comprises a “key element positional co-ordinate,” a “key element ID to locate the key element,” and a “URI of a selected element.” Ex. 1006, 3, 6–7, 12, 24, 27; *see* Ex. 1003 ¶ 165; Ex. 1043 ¶ 48.

(iii) “Visible Area Less Than the Entirety of the Page”

As Petitioner asserts, Phillips discloses that “the display dimensions of each user computing device 100A–100N may affect the amount of the web page . . . that is presented on the corresponding ‘rectangle’ of the respective displays 108A–108N.” Ex. 1005, 7:63–66; *see* Ex. 1003 ¶ 156; Pet. 41. As Petitioner also asserts, Phillips’s interest-mapping system 130 determines “the portion of a web page displayed on a particular device at any given time ‘based on the scroll position data 122 and the device configuration data 124 received from [that] computing device.’” Ex. 1005, 7:66–8:3; *see* Ex. 1003 ¶ 156; Pet. 41. And as Dr. Cooperstock testifies, an ordinarily skilled artisan “would have understood this and related disclosure as describing viewports in the form of rectangles that are a visible area less than the entirety of the page of the at least one page displayed on the client device at any given moment.” Ex. 1003 ¶ 157; *see* Ex. 1005, 4:64–5:45, 7:61–8:3, Figs. 1–4.

(iv) Summary for Claims 3 and 18

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach the subject matter of claims 3 and 18. Patent Owner's contentions to the contrary lack merit.

7. DEPENDENT CLAIM 4

Claim 4 depends from claim 3 and specifies that “the pan/zoom dataset includes any of: a size of the page, a size of each viewport, a position of each viewport, a time period for which each viewport was active, and a layout in which a rendering engine renders the at least one page on the client device.” Ex. 1001, 11:27–31.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach claim 4's subject matter. *See* Pet. 45–46. Specifically, Petitioner asserts that Phillips's interest-mapping system 130 analyzes scroll position data 122 and device configuration data 124 to determine the viewable areas on a computing device, such as the “displayed ‘rectangles’ having dimensions  $h_{mA} \times w_{mA}$  and  $h_{mB} \times w_{mB}$ , for computing devices 100A, and 100B, respectively,” illustrated in Phillips's Figures 3 and 4. *Id.* at 45 (quoting Ex. 1005, 6:1–4). According to Petitioner, the viewable areas on a computing device correspond to both “a size of each viewport” and “a position of each viewport” as recited in claim 4. *Id.* (citing Ex. 1003 ¶ 168; Ex. 1005, 5:13–6:11, 7:23–27, 7:61–8:19, Figs. 1–4). Petitioner also asserts that scroll position data 122 and device configuration data 124 include information “only for those scroll positions at which the scroll position is paused for a predetermined period of time” corresponding to “a time period for which each viewport was active.” *Id.* at 45–46 (emphasis omitted) (citing Ex. 1003 ¶ 169; Ex. 1005, 6:30–35, 8:20–37).

Patent Owner makes no arguments specific to claim 4. *See, e.g.*, Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 4’s subject matter. *See* Pet. 45–46; Ex. 1003 ¶¶ 167–171.

#### 8. DEPENDENT CLAIM 5

Claim 5 depends from claim 4 and specifies that “the pan/zoom dataset is created by monitoring events related to the touch screen display.” Ex. 1001, 11:32–34.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach claim 5’s subject matter. *See* Pet. 46–47. Specifically, Petitioner asserts that Phillips discloses that a computing device may include a display “configured as a ‘touch screen’ and may thus be configured to detect and respond to touch-based input from” a user. *Id.* at 46–47 (quoting Ex. 1005, 3:58–60). Petitioner also asserts that “Phillips’s techniques ‘determine areas of interest on a web page or other information resource based [on] the time a user spends in various scroll positions on the page.’” *Id.* at 47 (alteration by Petitioner) (quoting Ex. 1005, 5:65–67).

Patent Owner makes no arguments specific to claim 5. *See, e.g.*, Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 5’s subject matter. *See* Pet. 46–47; Ex. 1003 ¶¶ 172–175.

## 9. DEPENDENT CLAIM 6

Claim 6 depends from claim 4 and specifies that “the elements of the page included in the element dataset are at least document object module (DOM) elements.” Ex. 1001, 11:35–37.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach claim 6’s subject matter. *See* Pet. 47–48; Reply 14–18. Specifically, Petitioner asserts that Zambonini discloses hypertext markup language (HTML) files for websites comprising HTML elements, e.g., `<div>`, `<p>`, and `<body>`, corresponding to DOM elements. Pet. 47–48 (citing Ex. 1003 ¶ 178; Ex. 1006, 6, 11, 16). Petitioner also asserts that Zambonini’s interaction data includes session data that (1) relates to “the remote terminal 6 holding the viewing session” and (2) describes “the environment in which the interaction events are recorded.” *Id.* at 48 (quoting Ex. 1006, 2, 16). According to Petitioner, an ordinarily skilled artisan would have understood that the “session data of the monitored website, such as details and descriptions related to the viewing session, could include HTML formatted pages containing HTML elements.” *Id.* (citing Ex. 1003 ¶ 178; Ex. 1006, 15, 19–23).

Patent Owner disputes that the combined disclosures in Phillips and Zambonini teach claim 6’s subject matter. *See* Resp. 48–51; Sur-reply 17–19. Specifically, Patent Owner asserts that Zambonini discloses only the `<body>` HTML element and that the `<body>` HTML element “does not convey any information about its internal structure that is represented by the elements of a DOM.” Resp. 48–49; *see* Sur-reply 17. Patent Owner also asserts that “HTML elements cannot be equated with DOM elements” because “the DOM is a tree structure derived from the HTML source code of

a webpage by the web browser and used by the web browser as part of its layout algorithm for rendering the webpage.” Resp. 49 (emphasis omitted) (citing Ex. 2007 ¶ 139; Ex. 2010, 7).

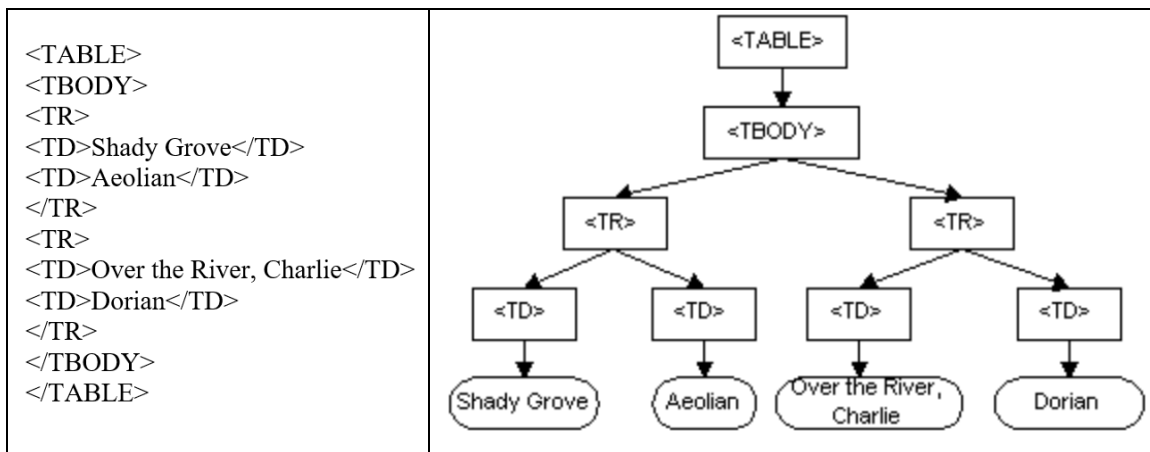
Additionally, Patent Owner contends that Zambonini does not “contemplate that any DOM elements are returned from the user devices to the interest-mapping system.” Resp. 50; *see* Sur-reply 17–19. Patent Owner contends that Petitioner fails to identify “any teaching in Zambonini that the HTML elements are returned by a user device or received by Zambonini’s interaction-mapping system from a user device.” Resp. 50–51.

Petitioner responds by asserting that an ordinarily skilled artisan would have known that (1) “an HTML document as a whole can represent a DOM element” and (2) “DOM elements were used to represent HTML elements.” Reply 15–16 (citing Ex. 1043 ¶¶ 41–45; Ex. 1045, 32–33; Ex. 1046 ¶¶ 36, 54; Ex. 2010, 2, 7–8). Petitioner asserts that an ordinarily skilled artisan “would have understood a reference to an HTML element as a DOM element.” *Id.* at 16 (citing Ex. 1043 ¶ 45). Petitioner also asserts that an ordinarily skilled artisan “would have found it obvious that the areas” of a web page, e.g., “an image,” “a hyperlink,” and “a defined amount of text (such as a word, phrase, sentence, and/or paragraph),” correspond to DOM elements. *Id.* at 17 (citing Ex. 1043 ¶ 47; Ex. 2010, 47–48, 67–68).

We agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 6’s subject matter. *See* Pet. 47–48; Reply 14–18; Ex. 1003 ¶¶ 177–180; Ex. 1043 ¶¶ 41–48. For the claimed “document object module (DOM) elements,” an ordinarily skilled artisan would have known that a DOM (1) uses a tree structure to represent “the web page that’s currently loaded in the browser window” and (2) may represent “a document

written in (X)HTML.” Ex. 1045<sup>6</sup>, 32–33; Ex. 2010, 2, 7; *see* Ex. 1043 ¶¶ 43, 45. For example, a DOM Level 1 Specification explains that a DOM “is an application programming interface (API) for HTML and XML documents” that “defines the logical structure of documents and the way a document is accessed and manipulated.” Ex. 2010, 7; *see* Resp. 49 (quoting Ex. 2010, 7). An ordinarily skilled artisan would also have known that a DOM “closely resembles” the structure of the document that it models. Ex. 2010, 7; *see* Ex. 1043 ¶ 45.

The following side-by-side comparison illustrates how a DOM “closely resembles” the structure of the document that it models:



On the left, this comparison depicts an HTML document, i.e., a table, and on the right, this comparison depicts a DOM representing the HTML document. Ex. 2010, 7–8; *see* Ex. 1043 ¶ 45. In this comparison, each HTML element corresponds to a DOM element. As Petitioner asserts, an ordinarily skilled artisan “would have understood a reference to an HTML element as a DOM element.” Ex. 1043 ¶ 45; *see* Reply 16.

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<sup>6</sup> For Exhibit 1045, we follow Petitioner’s practice and cite to the page numbers appearing in the publication rather than the page numbers applied to the exhibit.

Zambonini discloses HTML files for websites comprising HTML elements. Ex. 1006, 15–16, 20–25; *see* Ex. 1003 ¶¶ 178–179. Among other things, Zambonini explains that a “main HTML element,” such as a website logo, may serve as a “key element” or reference point for recording user interactions with a web page. Ex. 1006, 20; *see id.* at 4, 22; Ex. 1043 ¶ 48. As discussed above, Zambonini’s interaction data includes event data “relating to the single user’s interaction with” a web page, and the event data comprises a “key element positional co-ordinate,” a “key element ID to locate the key element,” and a “URI of a selected element.” Ex. 1006, 3, 6–7, 12, 24, 27; *see* Ex. 1003 ¶ 165; Ex. 1043 ¶ 48; *supra* § III.D.6(e)(ii).

As Dr. Cooperstock testifies, “a URI or key element ID to locate the key element would have both been well-recognized examples of DOM elements.” Ex. 1043 ¶ 48 (citing Ex. 2010, 48); *see* Ex. 2010, 47–48. As Dr. Cooperstock also testifies, an ordinarily skilled artisan “would have found it obvious that the areas (e.g., image, hyperlink) of the web page were DOM elements.” Ex. 1043 ¶ 47 (citing Ex. 2010, 47–48); *see* Ex. 1003 ¶ 163; Ex. 1005, 7:49–53; Ex. 2010, 47–48.

Zambonini also discloses a JavaScript program executing on a visitor terminal “such that when visitors click on web pages of the website, interaction data, i.e. information regarding the viewing session, is captured” by the visitor terminal. Ex. 1006, 16, Fig. 2; *see id.* at 11, 21, code (57); Ex. 1003 ¶ 186. After capturing the interaction data, the visitor terminal transmits the interaction data to a central server with a reporting module “for providing real-time reports to the users regarding the interaction data.” Ex. 1006, 16, Figs. 2–3; *see id.* at 5, 28, Fig. 11. Hence, the central server receives from the visitor terminal information about HTML elements that

correspond to DOM elements, information such as a “key element positional co-ordinate” and a “key element ID to locate the key element.” *See* Ex. 1003 ¶ 165; Ex. 1006, 3, 6–7, 12, 24, 27; Ex. 1043 ¶¶ 47–48.

Patent Owner’s contention that Zambonini does not “contemplate that any DOM elements are returned from the user devices to the interest-mapping system” does not distinguish claim 6 from the references because claim 6 does not require that a client device return any DOM elements to a mapping system. *See* Ex. 1001, 11:35–37; Resp. 50. Rather, claim 6 requires that a client device transmit “information” about the DOM elements, not the DOM elements themselves.

In particular, claim 1 recites “receiving, from the client device, browsing activity information” about a web page. Ex. 1001, 10:58–60. Claim 3 depends directly from claim 1 and specifies that “the browsing activity information” includes “an element data set” and that “the element dataset” contains “information that relates to” an element of the web page. *Id.* at 11:17–24. Claim 6 depends indirectly from claim 3 and specifies that “the elements of the page included in the element dataset are at least document object module (DOM) elements.” *Id.* at 11:35–37. Thus, according to claims 1, 3, and 6, the received “browsing activity information” contains “information that relates to” at least “document object module (DOM) elements,” not the DOM elements themselves.

When asserting that Zambonini discloses only the <body> HTML element, Patent Owner overlooks Zambonini’s explanation that a “main HTML element,” such as a website logo, may serve as a “key element” or reference point for recording user interactions with a web page. *See* Ex. 1006, 4, 20, 22; Ex. 1043 ¶ 48; Resp. 48–49.

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach claim 6's subject matter. Patent Owner's contentions to the contrary lack merit.

#### 10. DEPENDENT CLAIM 7

Claim 7 depends from claim 6 and specifies that “the page information includes any of: a page identifier, a uniform resource locator (URL), a browser type, a mobile application name, a platform type, resolution and depth of the touch screen display, a page load start time, an initialization start time, a time zone, and a user identifier.” Ex. 1001, 11:38–43.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach claim 7's subject matter. *See* Pet. 48–50. Specifically, Petitioner asserts that Phillips “discloses that the received page information includes display dimensions and resolution of the client device display.” *Id.* at 48–49 (citing Ex. 1005, 4:48–60). Petitioner also asserts that Zambonini “discloses collecting page information in the form of a URL of the page, a browser type, a page load start time, the operating system of the device, and a user identifier.” *Id.* at 49 (citing Ex. 1006, 2, 17, Fig. 5).

Patent Owner makes no arguments specific to claim 7. *See, e.g.*, Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock's testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 7's subject matter. *See* Pet. 48–50; Ex. 1003 ¶¶ 181–184; *supra* § III.D.3(c).

#### 11. DEPENDENT CLAIM 8

Claim 8 depends from claim 7 and specifies that “the page information and the browsing activity information are collected by a tracking code executed by the client device.” Ex. 1001, 11:44–46.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach claim 8’s subject matter because Zambonini “discloses receipt of page and browsing activity information collected by a tracking code (‘JavaScript program’ or ‘JSP’) executed by the client device.” Pet. 50 (citing Ex. 1006, 16, 21).

Patent Owner makes no arguments specific to claim 8. *See, e.g.*, Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 8’s subject matter. *See* Pet. 50; Ex. 1003 ¶¶ 185–187.

#### 12. DEPENDENT CLAIMS 9 AND 19

Claim 9 depends from claim 3 and reads as follows (with formatting added for clarity):

9. The method of claim 3,

wherein generating the exposure map at the page view-level further comprising: aggregating viewports contained in the pan/zoom dataset to create the page-view exposure map,

wherein the aggregated viewports are overlaid on top of another page-view of the page corresponding to the created page-view.

Ex. 1001, 11:47–53. Claim 19 depends from claim 18 and recites subject matter similar to claim 9. *Id.* at 12:57–63.

(a) Contentions in the Petition

Petitioner contends that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 9 and 19. *See* Pet. 50–53, 67–68. Specifically, Petitioner asserts that Phillips “describes that ‘[t]he web page may be subdivided into discrete areas of any desired size and shape, and the overlap or frequency at which users pause at those discretized areas may be determined.’” *Id.* at 51–52 (alteration by Petitioner) (quoting Ex. 1005, 6:14–17). Petitioner asserts that Phillips’s Figures 3 and 4 show overlapping areas of interest on a web page viewed by different users. *Id.* at 51. Petitioner also asserts that Phillips discloses that “‘determining the overlap between such rectangles . . . at which users paused for at least a predetermined period of time’ allows the system to ‘identify areas on the page that were viewed by users for at least the predetermined period of time.’” *Id.* (alteration by Petitioner) (emphasis omitted) (quoting Ex. 1005, 6:4–9).

Additionally, Petitioner contends that Phillips discloses that “the portions of the page displayed on the client device and in which the user of the device has interest (i.e., areas of interest) are mapped to a reference layout of the web page.” Pet. 51. Petitioner contends that “consistent with Phillips’s disclosure” an ordinarily skilled artisan “would have found it obvious to aggregate viewports (‘rectangles’) contained in the pan/zoom dataset associated with a single user’s browsing session to create the page-view level exposure map” with “the aggregated viewports being overlaid on top of another page-view of the page (the ‘reference layout’ ‘representation of the web page’) corresponding to the created page-view.” *Id.* at 53.

(b) Contentions in the Response

Patent Owner disputes that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 9 and 19 for two independent reasons. *See* Resp. 51–58. First, Patent Owner asserts that “the pan/zoom dataset containing the aggregated viewports is within the browsing activity information received from ‘the client device’ for ‘the user’ as recited in independent claims 1 and 16 from which claims 9 and 19 ultimately depend.” *Id.* at 53 (emphases by Patent Owner) (citing Ex. 1001, 10:56–11:11, 12:21–43). According to Patent Owner, Phillips “does not disclose multiple viewports in a pan/zoom dataset received from a same client device that could possibly be aggregated to facilitate an exposure map with salience reflecting exposure of webpage areas for an individual user.” *Id.* at 51.

Second, Patent Owner asserts that “the webpage map of Phillips cannot disclose both the reference layout of the independent claims and the ‘another page-view of the page corresponding to the created page-view’ of dependent claims 9 and 19.” Resp. 51–52. Patent Owner contends that if “the ‘another page-view of the page’ of claims 9 and 19 were the same reference layout, those dependent claims would have explicitly referred back to the ‘reference layout’ term recited in independent claims 1 and 16.” *Id.* at 56. Patent Owner contends that “the reference layout of the independent claims and the another page-view of the page of claims 9 and 19 are separate and different layouts that depend on the device rendering the webpage used to generate the exposure map.” *Id.* (citing Ex. 2007 ¶ 158). Patent Owner also contends that the ’645 patent’s specification supports this interpretation by explaining that either “the tracking server” or “a device of the user who

receives the exposure map” may render a web page. *Id.* at 55 (citing Ex. 1001, 8:28–39; Ex. 2007 ¶ 153).

Further, Patent Owner asserts that claims 9 and 19 encompass an embodiment where “the tracking server receives the another page-view of the page from the recipient device, generates the exposure map based on an aggregation of viewports overlaid on top of that another page-view of the page, and sends the resulting exposure map to the recipient device.” Resp. 56 (citing Ex. 2007 ¶ 157).

(c) Contentions in the Reply

Petitioner responds by asserting that Patent Owner’s interpretation of claims 9 and 19 requires “two mapping and overlay processes” to “satisfy both the independent claims and claims 9 and 19.” Reply 20 (citing Ex. 1043 ¶¶ 56–57). Petitioner contends that “no dual mapping process is described by the ’645 specification.” *Id.* (citing Ex. 1043 ¶¶ 56–57). Petitioner contends that “a dual mapping process would be duplicative since mapping/overlaying steps on two different layouts would create unnecessary inefficiency and redundancy.” *Id.* (citing Ex. 1043 ¶¶ 56–57). Petitioner also contends that Mr. Schmandt’s declaration accompanying the Preliminary Response and his deposition testimony “indicate that in order to satisfy claims 1 and 16, the reference layout must be created by the same system that generates the exposure maps.” *Id.* at 19 (emphasis omitted) (citing Ex. 1044, 88:13–17; Ex. 2003 ¶ 41).

Further, Petitioner asserts that an ordinarily skilled artisan “would have understood from the claims and the written description” that the “reference layout” recited in claims 1 and 16 “corresponds to” the “another

page-view of the page” recited in claims 9 and 19. Reply 18–19 (citing Ex. 1041 ¶¶ 235–254; Ex. 1043 ¶¶ 51–52).

(d) Contentions in the Sur-reply

Patent Owner responds by asserting that Mr. Schmandt’s analysis that “the reference layout is created by the same system that generates the exposure maps” confirms that “any of the devices of the network system 100 of FIG. 1 could create a reference layout and/or an exposure map according to the particular limitations of the various claims.” Sur-reply 20 (citing Ex. 1044, 88:11–17). Patent Owner asserts that method claims 1 and 9 “do not require any particular steps to be performed by any particular device” and that system claims 16 and 19 “are not drawn to ‘a tracking server’ or any other particular device.” *Id.* (citing Ex. 1001, 12:21, 12:57).

Patent Owner reiterates that when “the tracking server generates the exposure map, it ‘receives the another page-view of the page from the recipient device, generates the exposure map based on an aggregation of viewports overlaid on top of that another page-view of the page, and sends the resulting exposure map to the recipient device.’” Sur-reply 21 (quoting Resp. 56).

(e) Analysis

We disagree with Petitioner that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 9 and 19. *See* Pet. 50–53, 67–68; Reply 18–21. Petitioner relies on Phillips’s web page map for both the “another page-view of the page” required by claims 9 and 19 and the “reference layout” required by claims 1 and 16. Pet. 28–29, 53; *see id.* at 10; Reply 12. For the reasons explained below, however, the rendering (layout)

required by the dependent claims differs from the rendering (layout) required by the independent claims.

Claim construction starts with the claim language. *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). Different terms or phrases “used in separate claims are presumed to indicate that the claims have different meanings and scope.” *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999). “Where a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct component[s]’ of the patented invention.” *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (alteration in original) (quoting *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004)).

Here, “the clear implication of the claim language” is that the “another page-view of the page” required by claims 9 and 19 and the “reference layout” required by claims 1 and 16 cover different renderings (layouts). *See* Ex. 1001, 10:66–67, 11:6–8, 11:47–53, 12:30–33, 12:39–40, 12:57–63. As Patent Owner contends, if “the ‘another page-view of the page’ of claims 9 and 19 were the same reference layout, those dependent claims would have explicitly referred back to the ‘reference layout’ term recited in independent claims 1 and 16.” *See* Resp. 56.

The ’645 patent’s specification does not conflict with “the clear implication of the claim language.” The specification uses the term “reference layout” and the phrase “another pageview of the web page” and indicates that each rendering may serve as a foundation for an overlay, e.g., a foundation for an “aggregation of viewport instances.” Ex. 1001,

8:5–9, 8:17–27, Fig. 4. But the specification does not indicate with sufficient clarity that the term “reference layout” and the phrase “another pageview of the web page” are synonyms that identify the same rendering. *See id.* at 8:1–27, Fig. 4; *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998) (explaining that any “special meaning” for claim language “must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of experience in the field of the invention”).

Also, as Patent Owner contends, the specification explains that different computing machines or devices may render a web page. Ex. 1001, 8:28–46; *see* Resp. 55. According to the specification, a rendering may come from either “the tracking server,” “a device of the user who receives the exposure map,” or “an external source.” Ex. 1001, 8:28–46; *see* Ex. 2009, 292:8–294:14. For example, a first machine or device may render a web page to create the “reference layout” required by claims 1 and 16 as a foundation for a first exposure map, and a second machine or device may render the web page to create the “another page-view of the page” required by claims 9 and 19 as a foundation for a second exposure map. *See* Ex. 1001, 8:28–39, 10:66–11:8, 11:47–53, 12:30–40, 12:57–63, Fig. 4; Resp. 56; Sur-reply 21.

Consistent with this example, claims 13 and 23 depend from claims 9 and 19, respectively, and further require aggregating multiple “exposure maps generated for the user.” Ex. 1001, 12:5–8, 13:17–21. Nothing precludes the aggregating process of claims 13 and 23 from employing exposure maps based on separate renderings, e.g., by using a composite of the separate renderings. Hence, the claim language comports with Patent

Owner’s assertion that claims 9 and 19 encompass an embodiment where “the tracking server receives the another page-view of the page from the recipient device . . . and sends the resulting exposure map to the recipient device.” *See id.* at 8:1–39, 12:5–8, 13:17–21, Fig. 4; Resp. 56; Sur-reply 21.

Additionally, the ’645 patent’s prosecution history supports “the clear implication of the claim language.” As background, application claims 1–24 became patent claims 1–24, respectively. Ex. 1002, 18.

As filed in May 2013, claims 1 and 16 did not require a “reference layout.” Ex. 1002, 488, 490–91. Claims 9 and 19 depended indirectly from claims 1 and 16, respectively, and required “aggregating viewports contained in the pan/zoom dataset to create a page-view exposure map, wherein the aggregated viewports are overlaid on top of another page-view of the page corresponding to the created page-view.” *Id.* at 489, 491. Claims 10 and 20 depended directly from claims 9 and 19, respectively, and required, among other things, (1) “creating [or create] a reference layout, wherein the reference layout is a layout of the page and is different than a layout of the page-view,” and (2) “mapping [or map] each viewport to the reference layout . . . .” *Id.* at 489, 491. Thus, the claims as filed treated the “reference layout” and the “another page-view of the page” as covering different renderings.

In a February 2015 Office action, the Examiner rejected claims 1 and 16 under § 103(a) as obvious over Gemmell and Cohen.<sup>7</sup> Ex. 1002,

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<sup>7</sup> *See* U.S. Patent Application Publication No. 2008/0288492 A1, titled “Assisted Management of Bookmarked Web Pages,” to Gemmell at al. (“Gemmell”); U.S. Patent Application Publication No. 2004/0034706 A1, titled “Visualizing Access to a Computer Resource,” to Cohen at al. (“Cohen”).

370–72. The Examiner rejected claims 9, 10, 19, and 20 under § 103(a) as obvious over Gemmell, Cohen, and Giambalvo. *Id.* at 373, 375, 377.

In a May 2015 response to the February 2015 Office action, the Applicants amended claims 1 and 16 to add the following limitations to each claim: “creating a reference layout of the at least a page displayed over the client device” and “wherein each page-view is characterized by a page-view layout mapped to overlay the reference layout.” Ex. 1002, 355, 357–58. The Applicants also amended claims 10 and 20 to delete the “creating [or create] a reference layout” limitation from each claim. *Id.* at 356, 358–59. But the Applicants did not change the language in claims 9 and 19 about overlaying aggregated viewports “on top of another page-view of the page corresponding to the created page-view.” *Id.* at 356, 358. Thus, the claims as amended treated the “reference layout” and the “another page-view of the page” as covering different renderings.

After further Office actions and claim amendments not material to the “reference layout” or the “another page-view of the page,” the Examiner allowed the claims. *See* Ex. 1002, 11–17, 230–42, 253–58, 295–306, 317–22, 336–48.

For these reasons, the intrinsic evidence indicates that the “another page-view of the page” required by claims 9 and 19 and the “reference layout” required by claims 1 and 16 cover different renderings (layouts). But Petitioner relies on the same rendering—Phillips’s web page map—for both the “another page-view of the page” required by claims 9 and 19 and the “reference layout” required by claims 1 and 16. Pet. 28–29, 53; *see id.* at 10; Reply 12. Hence, Petitioner fails to show that Phillips teaches the following limitation in claims 9 and 19: “wherein the aggregated viewports

are overlaid on top of another page-view of the page corresponding to the created page-view.” Petitioner does not attempt to show that Zambonini teaches that limitation. *See* Pet. 50–53, 67–68; Reply 18–21.

As for Mr. Schmandt’s declaration accompanying the Preliminary Response and his deposition testimony that Petitioner cites, Mr. Schmandt explains for claims 1 and 16 that “the system as a whole” (1) generates the exposure map, (2) creates the “reference layout,” and (3) does not receive the “reference layout” from “an external source.” Ex. 1044, 87:14–88:17; Ex. 2003 ¶ 41; *see* Reply 19 (citing Ex. 1044, 88:13–17; Ex. 2003 ¶ 41). Mr. Schmandt’s testimony does not address the “another page-view of the page” required by claims 9 and 19 or a process producing separate exposure maps based on separate renderings. *See* Ex. 1044, 87:14–88:17; Ex. 2003 ¶ 41.

Additionally, we disagree with Petitioner’s contention that “a dual mapping process would be duplicative since mapping/overlying steps on two different layouts would create unnecessary inefficiency and redundancy.” *See* Reply 20 (citing Ex. 1043 ¶¶ 56–57). An exposure map generated from a web page rendered by “a device of the user who receives the exposure map” may provide an analyst with greater insight by allowing the analyst to see the web page the same way the user sees the web page. Additionally, as discussed above, claims 13 and 23 depend from claims 9 and 19, respectively, and further require aggregating multiple “exposure maps generated for the user.” Ex. 1001, 12:5–8, 13:17–21. Nothing precludes the aggregating process of claims 13 and 23 from employing exposure maps based on separate renderings, e.g., by using a composite of the separate renderings. In any event, the alleged “inefficiency and

redundancy” of generating two exposure maps does not overcome “the clear implication of the claim language” and the rest of the intrinsic evidence.

In short, Petitioner fails to identify evidence sufficient to overcome the presumption that different terms or phrases “used in separate claims” have “different meanings and scope.” *See* Pet. 50–53, 67–68; Reply 18–21; Ex. 1041 ¶¶ 235–254; Ex. 1043 ¶¶ 51–59; *Karlin Tech.*, 177 F.3d at 971–72. And due to that failure, Petitioner fails to show by a preponderance of the evidence that claims 9 and 19 are unpatentable under § 103(a) as obvious over Phillips and Zambonini.

### 13. DEPENDENT CLAIMS 10–13 AND 20–23

Claims 10–13 depend directly or indirectly from claim 9. Ex. 1001, 11:54–12:12. Claims 20–23 depend directly or indirectly from claim 19. *Id.* at 12:64–13:24. Hence, claims 10–13 and 20–23 incorporate all the limitations of their respective base claims. 35 U.S.C. § 112 ¶ 4 (2006).

For the reasons discussed for claims 9 and 19, Petitioner fails to show by a preponderance of the evidence that claims 10–13 and 20–23 are unpatentable under § 103(a) as obvious over Phillips and Zambonini. *See supra* § III.D.12.

### 14. DEPENDENT CLAIMS 14 AND 24

Claim 14 depends from claim 1 and specifies that “the browsing activity of the user includes interaction of the user with at least one of a page of a mobile application installed on the client device and a web page rendered by a web browser installed on the client device.” Ex. 1001, 12:13–17. Claim 24 depends from claim 16 and recites subject matter similar to claim 14. *Id.* at 13:25–29.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 14 and 24. *See* Pet. 63–64, 69. Specifically, Petitioner asserts that Phillips discloses the following:

- (1) “mobile computing device 100A retrieves web pages ‘from one or more remote web servers 150’ over network(s) 120, such that the ‘web pages or portions thereof’ are displayed on mobile computing device display 108A”; and
- (2) a “typical web browser may include one or more navigational tools that provide the ability to navigate through . . . content on a web page,” e.g., using a scroll bar.

*Id.* at 63 (alteration by Petitioner) (quoting Ex. 1005, 4:64–67, 6:60, 6:63).

Patent Owner makes no arguments specific to claims 14 and 24. *See, e.g.,* Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach the subject matter of claims 14 and 24. *See* Pet. 63–64, 69; Ex. 1003 ¶¶ 215–217, 234.

#### 15. DEPENDENT CLAIM 15

Claim 15 recites “[a] non-transitory computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to claim 1.” Ex. 1001, 12:18–20.

Petitioner contends that the combined disclosures in Phillips and Zambonini teach claim 15’s subject matter. *See* Pet. 64. Specifically, Petitioner asserts that Phillips discloses the following:

- (1) its “techniques . . . may also be embodied or encoded in an article of manufacture including a computer-readable storage medium encoded with instructions . . . [that] may

cause one or more programmable processors . . . to implement one or more of the techniques”; and

- (2) “the one or more processors” may execute the “instructions included or encoded in the computer-readable storage medium.”

*Id.* (alterations by Petitioner) (quoting Ex. 1005, 12:13–22).

Patent Owner makes no arguments specific to claim 15. *See, e.g.*, Resp. 45–64; Sur-reply 15–24.

For the reasons stated by Petitioner and supported by Dr. Cooperstock’s testimony, we agree with Petitioner that the combined disclosures in Phillips and Zambonini teach claim 15’s subject matter. *See* Pet. 64; Ex. 1003 ¶¶ 218–219; *supra* §§ III.D.3(a)–(e).

#### 16. SUMMARY FOR THE DEPENDENT CLAIMS

For the reasons discussed above, the combined disclosures in Phillips and Zambonini teach the subject matter of claims 2–8, 14, 15, 17, 18, and 24. *See supra* §§ III.D.5–III.D.11, III.D.14–III.D.15. Moreover, an ordinarily skilled artisan would have been motivated to combine Zambonini’s teachings with Phillips’s teachings as Petitioner proposes. *See supra* § III.D.3(f). Hence, Petitioner has shown by a preponderance of the evidence that claims 2–8, 14, 15, 17, 18, and 24 are unpatentable under § 103(a) as obvious over Phillips and Zambonini.

For the reasons discussed above, Petitioner has not shown that Phillips or Zambonini teaches the following limitation in claims 9 and 19: “wherein the aggregated viewports are overlaid on top of another page-view of the page corresponding to the created page-view.” *See supra* § III.D.12. Hence, Petitioner has not shown by a preponderance of the evidence that claims 9 and 19 are unpatentable under § 103(a) as obvious over Phillips and

Zambonini. And because claims 10–13 depend directly or indirectly from claim 9 and claims 20–23 depend directly or indirectly from claim 19, Petitioner has not shown by a preponderance of the evidence that claims 10–13 and 20–23 are unpatentable under § 103(a) as obvious over Phillips and Zambonini. *See supra* § III.D.13.

#### IV. PETITIONER’S MOTION TO EXCLUDE

Petitioner moves to exclude the Declaration of Christopher Schmandt in Support of Patent Owner’s Response (Exhibit 2007) in its entirety. *See* Paper 55, 2–9. Among other things, Petitioner asserts that Mr. Schmandt’s declaration fails to “disclose the underlying facts or data on which the opinion is based” and, therefore, “should be excluded as unreliable and not based on sufficient facts or data.” *Id.* at 8 (citing 37 C.F.R. § 42.65(a); Fed. R. Evid. 702–703).

Patent Owner opposes Petitioner’s motion to exclude Mr. Schmandt’s declaration. *See* Paper 56, 1–13. Among other things, Patent Owner asserts that Petitioner failed to “preserve the right to file a motion to exclude” because Petitioner filed “general objections to evidence relating to” Exhibit 2007 that “did not specify any particular statement, paragraph, or even section of Exhibit 2007 that purportedly failed to comply with any rule of evidence.” *Id.* at 1.

In deciding the patentability issues, we do not rely Mr. Schmandt’s declaration in a manner adverse to Petitioner. *See, e.g., supra* §§ III.B, III.D.12–III.D.13. Hence, we dismiss Petitioner’s motion to exclude as moot. *See Analog Devices, Inc. v. Xilinx, Inc.*, IPR2020-01606, Paper 63 at 10 (PTAB Apr. 20, 2022); *Netflix, Inc. v. DivX, LLC*, IPR2020-00614,

Paper 70 at 78 (PTAB Jan. 26, 2022); *Hamilton Techs. LLC v. Tehrani*, IPR2020-01199, Paper 57 at 54 (PTAB Dec. 28, 2021).

## V. CONCLUSION

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties' respective arguments, Petitioner has shown by a preponderance of the evidence that claims 1–8, 14–18, and 24 are unpatentable under § 103(a) as obvious over Phillips and Zambonini. But Petitioner has not shown by a preponderance of the evidence that claims 9–13 and 19–23 are unpatentable based on these references.<sup>8</sup>

In summary:

| <b>Claims</b>              | <b>35 U.S.C. §</b> | <b>Reference(s)/<br/>Basis</b> | <b>Claims<br/>Shown<br/>Unpatentable</b> | <b>Claims Not<br/>Shown<br/>Unpatentable</b> |
|----------------------------|--------------------|--------------------------------|------------------------------------------|----------------------------------------------|
| 1–24                       | 103(a)             | Phillips,<br>Zambonini         | 1–8, 14–18,<br>24                        | 9–13, 19–23                                  |
| <b>Overall<br/>Outcome</b> |                    |                                | 1–8, 14–18,<br>24                        | 9–13, 19–23                                  |

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<sup>8</sup> Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding after the issuance of this Final Written 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).

## VI. ORDER

Accordingly, it is

ORDERED that claims 1–8, 14–18, and 24 in the '645 patent are determined to be unpatentable;

ORDERED that claims 9–13 and 19–23 in the '645 patent are not determined to be unpatentable;

FURTHER ORDERED that Petitioner's motion to exclude (Paper 55) is dismissed as moot; and

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

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