

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC,
Petitioner,

v.

TARGETEDRADIO LLC,
Patent Owner.

IPR2020-00681
Patent 8,948,684 B2

Before JUSTIN T. ARBES, MONICA S. ULLAGADDI, and
JOHN R. KENNY, *Administrative Patent Judges*.

KENNY, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner Unified Patents, LLC filed a Petition requesting *inter partes* review of claims 1–9 (the “challenged claims”) of U.S. Patent No. 8,948,684 B2 (Ex. 1001, the “’684 patent”) pursuant to 35 U.S.C. § 311 *et seq.* Paper 1 (“Pet.”). On September 24, 2020, we instituted *inter partes* review of all challenged claims. Paper 12.

Patent Owner subsequently filed a Patent Owner’s Response (Paper 16, “PO Resp.”). Petitioner filed a Reply to Patent Owner’s Response (Paper 19, “Reply”), and Patent Owner filed a Sur-reply (Paper 22, “Sur-reply”). At the parties’ request (Papers 23, 24), an oral hearing was held on June 24, 2021, a transcript of which is included in the record. Paper 31 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. For the reasons discussed below, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1 and 3–9 are unpatentable. Petitioner, however, has not shown, by a preponderance of the evidence, that claim 2 is unpatentable.

A. Related Matters

The parties identify the following related, district court litigation: *Targeted Radio LLC v. Pandora Media LLC*, 3:19-cv-02299 (N.D. Tex.). Pet. 67; Paper 4, 2.

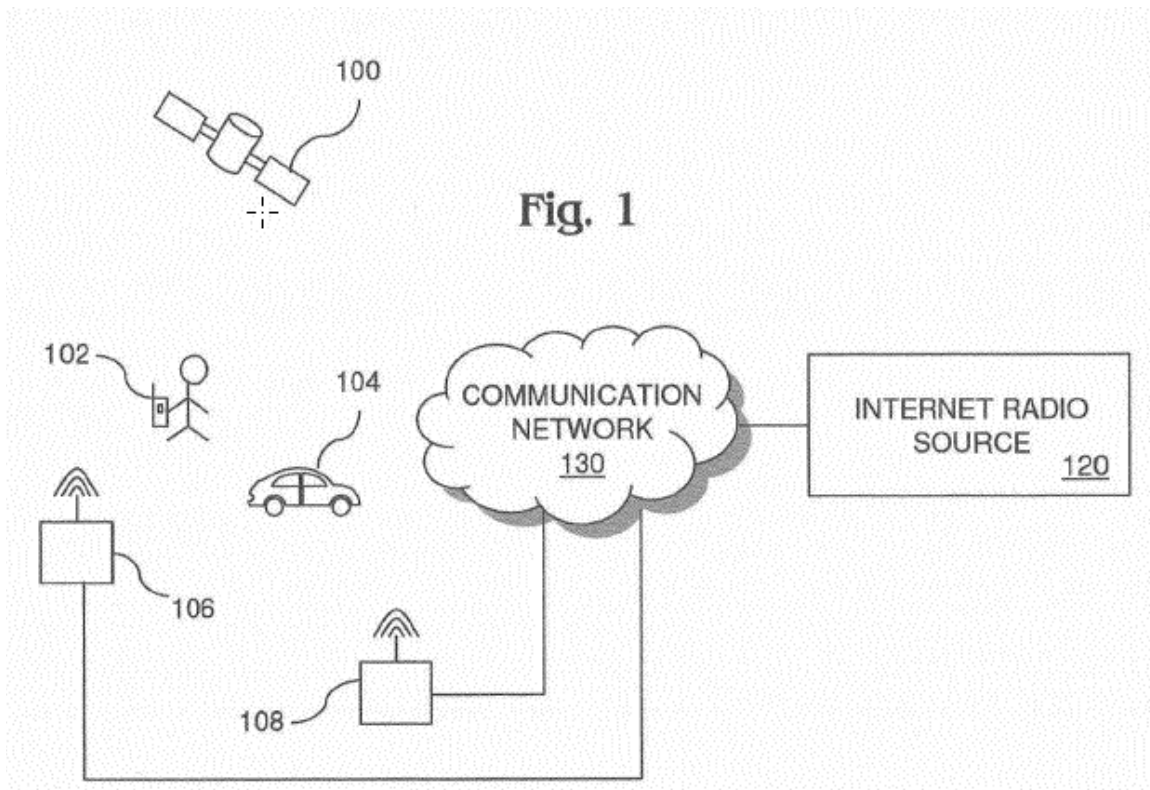
B. Challenged Patent

The ’684 patent is directed to “[m]ethods and systems for selecting content for outputting on a mobile device during a program break in an Internet radio stream using mobile device location information.” Ex. 1001, code (57). The Specification of the ’684 patent (“Specification”) indicates the following: “[t]he audio content output[] during Internet radio program

breaks is often output[] to all listeners without regard to where they are.” *Id.* at 1:40–42. This outputted content “may be of limited value to many listeners, advertisers and broadcasters because it addresses topics that are not sufficiently local.” *Id.* at 1:42–45. Further, indiscriminate advertising limits the pool of businesses that can afford to purchase ad spots on Internet radio. *Id.* at 1:45–47. For example, many neighborhood businesses that market to a local customer base cannot afford to pay for an advertisement output to the entire listenership of an Internet radio program. *Id.* at 1:47–50.

The ’684 patent addresses this problem by “seamlessly select[ing] content for outputting on a mobile device during a program break in an Internet radio stream using mobile device location information and program break markers.” Ex. 1001, 1:64–67. The ’684 patent reports that “[u]sing mobile device location information to select program break content facilitates selection of program break content that addresses topics highly relevant to the listener, advertiser and broadcaster and thus often of greater value to one or more of these entities.” *Id.* at 1:67–2:5. Further, “[u]sing program break markers facilitates the real-time content selection required for seamless Internet radio.” *Id.* at 2:5–6.

Figure 1 of the ’684 patent, reproduced below, shows a communication system (Ex. 1001, 4:9–10):



In Figure 1 above, mobile devices 102 and 104 communicate wirelessly with Internet access devices 106 and 108, respectively, which communicate with Internet radio source 120 via communication network 130. *Id.* at 4:37–48.

Figure 6 of the '684 patent is reproduced below:

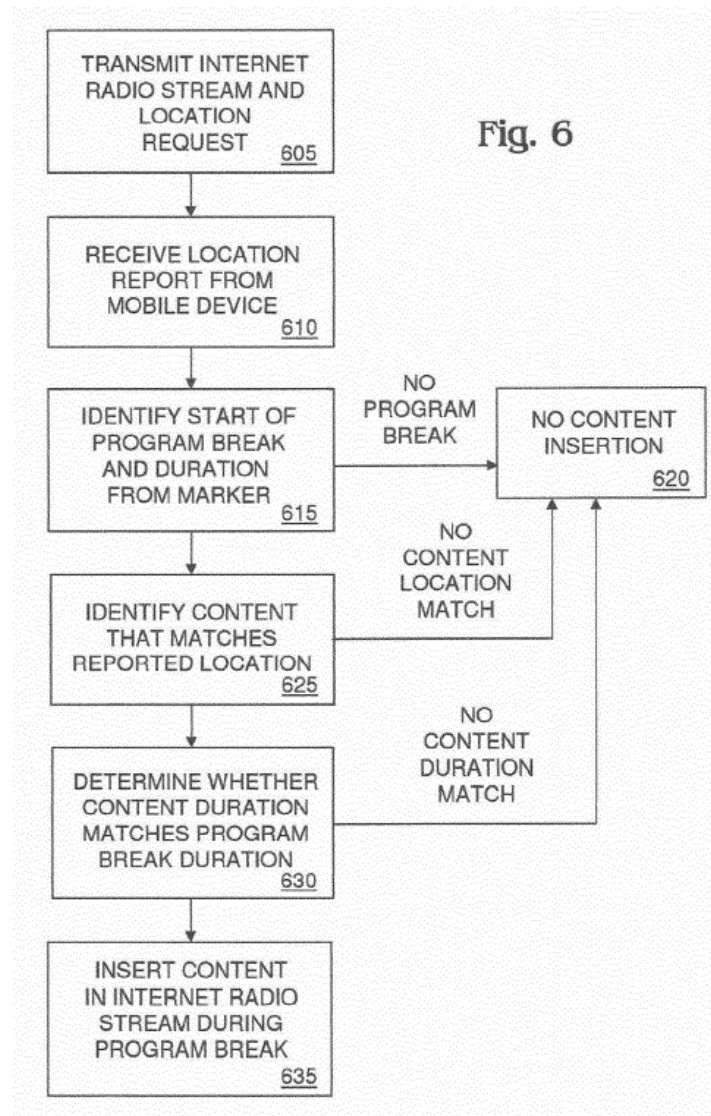


Figure 6 above “shows method steps performed by an Internet radio source to facilitate location-based selection of content for outputting on a mobile device during a program break in an Internet radio stream.” Ex. 1001, 4:20–23.

Figure 7 of the '684 patent is shown below:

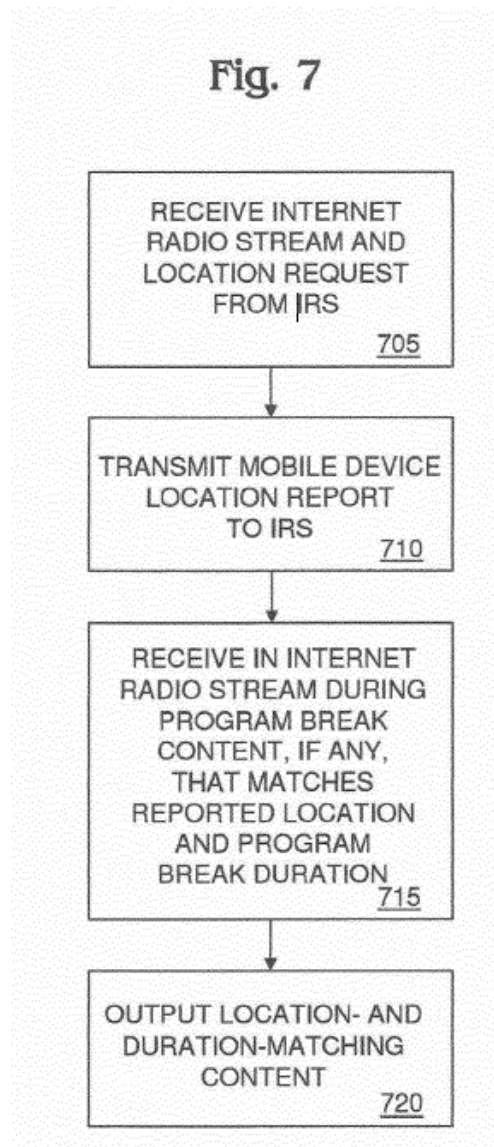


Figure 7 above shows the “method steps performed on a mobile device to facilitate location-based selection of content for outputting on the mobile device during a program break in an Internet radio stream.” Ex. 1001, 4:24–27.

Figure 8 of the '684 patent is shown below:

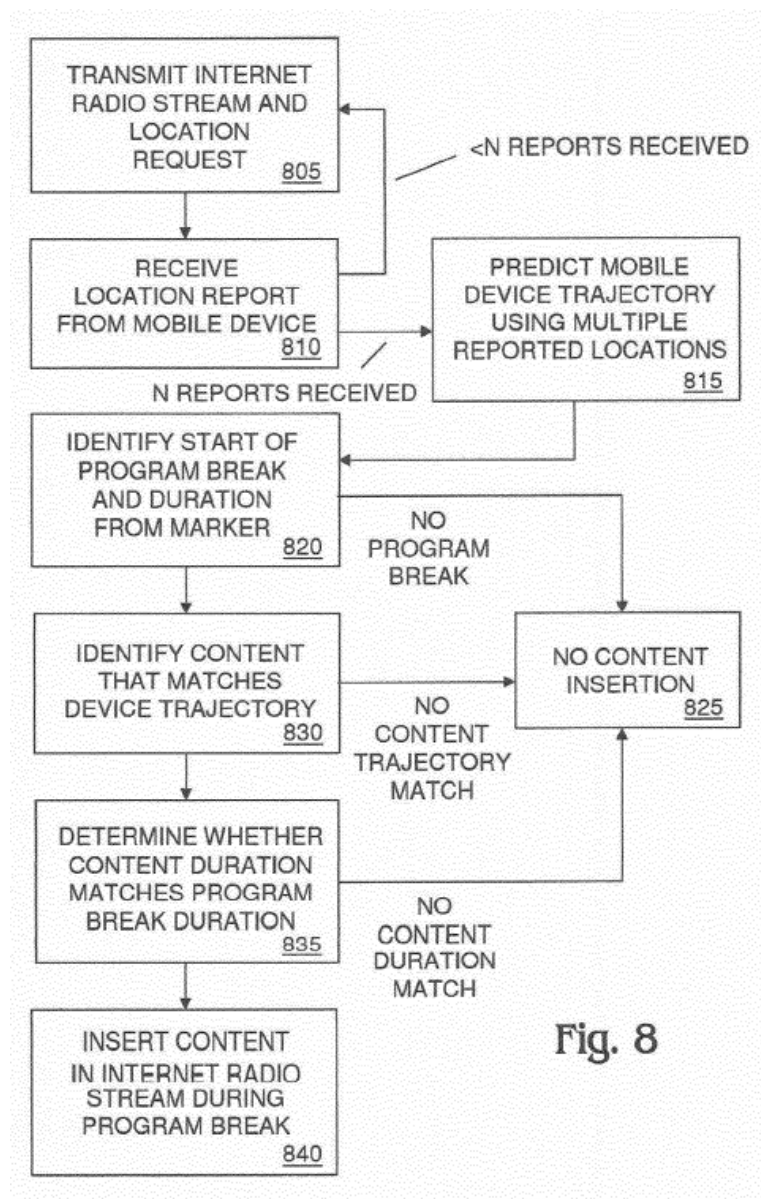


Figure 8 above “shows method steps performed by an Internet radio source to facilitate trajectory-based selection of content for outputting on a mobile device during a program break in an Internet radio stream in other embodiments of the invention.” Ex. 1001, 4:28–31.

C. Challenged Claims

Petitioner challenges claims 1–9. Pet. 1. Claims 1 and 6–9 are independent. Ex. 1001, 11:57–13:30. Claim 1 recites:

1. A method for streaming localized content to a mobile device during an advertising break in an Internet radio stream, comprising:

[1.1]¹ streaming from an Internet radio source to a mobile device an Internet radio stream;

[1.2] receiving by the Internet radio source from the mobile device recurring location reports reporting new locations of the mobile device resolved by the mobile device;

[1.3] detecting electronically by the Internet radio source a marker indicating a start of an advertising break in the Internet radio stream;

[1.4] streaming from the Internet radio source to the mobile device during the advertising break at least one advertisement selected by the Internet radio source using at least one of the reported locations and a duration indicator indicating a duration of the advertising break; and

[1.5] resuming by the Internet radio source streaming to the mobile device of the Internet radio stream after the advertising break.

Ex. 1001, 11:56–12:8.

D. Level of Ordinary Skill

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted).

Petitioner asserts that an ordinarily skilled artisan at the time of the alleged invention of the ’684 patent would have had “at least a bachelor’s

¹ For ease of reference, we include in brackets the numbers that were assigned to these claim limitations in the Petition.

degree in electrical engineering, computer science, or a related subject or the equivalent, and two years of experience working with streamed content, including targeted advertising.” Pet. 8 (citing Ex. 1001, 1:20-60; Ex. 1011 ¶ 25). Further, Petitioner asserts that more relevant experience could compensate for less education, and vice versa. *Id.* (citing Ex. 1011 ¶ 25).

Patent Owner argues an ordinarily skilled artisan would have had “at least a bachelor’s degree in electrical engineering, computer engineering, or an equivalent discipline, and some work experience with streamed content.” PO Resp. 20 (citing Ex. 2002 ¶ 38). Patent Owner also asserts that more relevant experience could compensate for less education, and vice versa. *Id.* (citing Ex. 2002 ¶ 38). According to Patent Owner, Petitioner’s expert, Anthony J. Wechselberger, admitted that an ordinarily skilled artisan need not have advertising-specific experience. *Id.* at 20–21 (quoting Ex. 2001, 19:15–21).

We adopt Patent Owner’s proposed definition for an ordinarily skilled artisan. *See* Ex. 2001, 19:15–21. We, however, would reach the same conclusions if we were to adopt Petitioner’s.

E. Claim Construction

In an *inter partes* review proceeding based on a petition filed on or after November 13, 2018, a patent claim shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (as amended Oct. 11, 2018). This rule adopts the same claim construction standard used by Article III federal courts, which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. Under this standard, the words of a claim are generally given their “ordinary and customary

meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See id.* at 1312–13.

The parties request that we construe the term “advertising break,” partially construe the term “new locations,” and determine whether limitation 1.2 requires that recurring location reports must be received before selecting an advertisement.² PO Resp. 14–19; Reply 2–10; Sur-reply 1–11. We address those requests below.

1. advertising break

Patent Owner proposes construing the term “advertising break” as “a dead period in a radio transmission.” PO Resp. 14. Petitioner proposes construing the term as “a break in the program content (the ‘Internet radio stream’) where advertising content was or can be inserted.” Reply 2.

²The parties requested that some additional terms be construed, but narrowed their requests to the terms identified above. In particular, the Petition requested that the Board construe “mobile device” and argued that all other terms do not require construction. Pet. 9. The Petition nevertheless provided a proposed definition for the term “duration indicator.” *Id.* The Patent Owner Response argued that the terms “mobile device” and “duration indicator” do not require construction. PO Resp. 19–20. The Patent Owner Response, however, requested that the Board construe “advertising break” and limitation 1.2. PO Resp. 14–19. In response, Petitioner’s Reply represented that “[o]nly two terms remain relevant to the Parties’ dispute.” Reply 1. The Reply identified the two relevant terms as “advertising break” and limitation 1.2. *Id.* at 1–10. In the Sur-reply, Patent Owner addressed the term “advertising break” and limitation 1.2. Sur-reply 1–11. For limitation 1.2, the Patent Owner Response, the Reply, and the Sur-Reply addressed the term “new locations” and addressed whether limitation 1.2 requires that recurring location reports must be received before selecting an advertisement. PO Resp. 16–19; Reply 3–10; Sur-reply 5–11.

a. Parties' Arguments

Patent Owner argues that the Specification indicates that an advertising break is a type of program break. PO Resp. 14. Patent Owner asserts that the Summary of the Invention refers exclusively to embodiments that select “program break content” to place in “program breaks.” *Id.* (citing Ex. 1001, 1:64–4:65). Patent Owner further asserts that the Specification teaches that in some embodiments the program break is an advertising break. *Id.* at 15. According to Patent Owner, the Specification consistently uses the term “program break” to refer to breaks in a program stream, and an “advertising break” is one example of such a break. *Id.*

Patent Owner further argues that a program break is a dead period in the Internet radio stream. PO Resp. 16. Patent Owner asserts that the Specification teaches that, if content selected for insertion into a program break is substantially shorter than the duration of the program break, the result is a substantial dead period in the Internet radio stream. *Id.* Patent Owner argues that, therefore, a program break and an advertising break are both dead periods in the Internet radio stream. *Id.*

Petitioner argues that claim 1 uses the term “advertising break” to refer to the same break in the Internet radio stream both before and after an advertisement is inserted. Reply 2. Petitioner further asserts that the Specification describes an advertising break as a break in the primary content where secondary content is inserted. *Id.* Petitioner further argues that the Specification contemplates that the break may contain predetermined default content (i.e., not dead space). *Id.* Petitioner asserts that an ordinarily skilled artisan would not have wanted to play dead air in the embodiments of Figures 6 and 8 when no content can be found. *Id.*

In response, Patent Owner argues that the Specification only discusses “predetermined default content” in the context of which content to insert into a program break. Sur-reply 2. Patent Owner argues that a program break’s essential quality is it is a dead period. *Id.* at 3 (citing Ex. 1001, 9:25–32). Patent Owner also argues that, although dead air would represent lost revenue, engineering involves tradeoffs. *Id.* Patent Owner asserts that the disclosed system eliminates complexity that can offset the profits gained from eliminating dead air. *Id.* Patent Owner also argues that the Specification expressly discloses providing users with a dead period. *Id.* at 4.

b. Analysis

We adopt Petitioner’s proposed construction for advertising break: “a break in the program content (the ‘Internet radio stream’) where advertising content was or can be inserted.” Reply 2.

The Specification and challenged claims support Petitioner’s proposed construction. First, both parties agree that an advertising break is a type of program break. PO Resp. 14; Reply 2. Although the Specification does not expressly define the term “program break,” the Specification uses the term to refer to a break during which content which is distinct from a program was or can be inserted. For example, the Specification discloses that audio programs in an Internet radio stream “will normally include program breaks *during which audio content that is distinct from the program content is delivered.*” Ex. 1001, 1:34–36 (emphasis added). The Specification further describes that the “present invention seamlessly *selects content for outputting* on a mobile device *during a program break* in an Internet radio stream using mobile device location information and program break

markers.” *Id.* at 1:64–67 (emphasis added). The Specification has additional disclosures of selecting non-program content for insertion in a program break. *See* Ex. 1001, 1:64–4:5, 7:37–48, 7:62–66, 8:35–39, 9:10–50, 9:65–10:11, 10:12–16, Figs. 6 (step 635), Fig. 7 (step 715), Fig. 8 (step 840).

Second, the Specification uses the term “program break” to refer to a break before and after the insertion of the non-program content into that break, which supports the clause in Petitioner’s construction of “where advertising content was or can be inserted.” For example, the Specification uses the term program break to refer to a break before non-program content is inserted into it: “[i]f a program break is found, Internet radio source 120 under control of processor 430 next identifies any content in the program break content database 550 that matches the most recent reported location of mobile device 200.” Ex. 1001, 8:35–39; *see also* 10:59–63. This identification is done before the non-program content is inserted into the break. *Id.*, Fig. 6, steps 625, 635. The Specification also uses the term “program break” to refer to a break where non-programming content has been inserted and is delivered: “Internet radio source 120 under control of processor 430 inserts the duration-matching program break content into the Internet radio stream during the program break (840), and the program break content is delivered to mobile device 200 during the program break.” *Id.* at 11:19–24.

Third, although the Specification does not expressly use the term “advertising break,” it refers to program breaks in which advertising is or can be inserted, disclosing “program breaks during which advertisements . . . are outputted.” Ex. 1001, 1:36–39. Similarly, the Specification discloses

that content inserted during a program break can be “an advertisement.” *Id.* at 3:1–2. The Specification also discloses that the “[p]rogram break content stored in database 550 comprises audio content, such as advertisements.” *Id.* at 7:50–53. Further, the Specification describes outputting advertisements during program breaks. *Id.* at 10:11–27.

Fourth, the language of claim 1 makes clear that the term “advertising break” encompasses a break in a program before and after the insertion of an advertisement. Claim 1 recites “detecting . . . a start of an advertising break” then “streaming . . . during the advertising break at least one advertisement” then resuming “streaming . . . after the advertising break.” The recited detection occurs before the insertion of the advertisement, whereas the recited streaming and resumption of streaming occurs after the insertion of the advertisement. Thus, the Specification and language of claim 1 support Petitioner’s proposed construction. Ex. 1017 ¶¶ 12–27.

The Specification and language of the challenged claims do not support Patent Owner’s proposed construction of “a dead period in a radio transmission.” PO Resp. 14; Ex. 1017 ¶¶ 17–27. The Specification discloses that a dead period in a radio transmission can occur in a program break if the program break content does not have the same duration as the program break. Ex. 1001, 9:25–32. But the Specification does not refer to the entire program break as constituting a dead period. *Id.* It refers to only the portion of the break by which duration of the break exceeds the duration of the program break content as being the dead period. *Id.* In particular, the Specification discloses: “if the duration of a given instance of location-matching program break content is substantially less than the duration of the program break, . . . outputting of such program break content would finish

well before completion of the program break, resulting in a substantial dead period in the Internet radio stream.” *Id.* The Specification describes this dead period as undesirable and indicates that a dead period should be minimized or avoided. *Id.* (“the program content is not suitable for insertion during the program break”).

Further, the Specification discloses that a dead period can be avoided during the program break by making the duration of the break content identical to that of the program break: “if the duration of a given instance of location matching program break content is *identical* or only slightly shorter than the duration of the program break, the program break content is suitable for insertion during the program break.” *Id.* at 9:32–36 (emphasis added). Thus, a program break does not require a dead period. A dead period merely results when the duration of the program break is longer than that of the program break content.

Therefore, we construe “advertising break” as “a break in the program content (the ‘Internet radio stream’) where advertising content was or can be inserted.” Ex. 1017 ¶¶ 12–27.

2. new locations

Limitation 1.2 recites “new locations.” Patent Owner proposes that we partially construe this term as excluding “locations reported by a subsequent report if that location is spatially identical to a previous report.” PO Resp. 16. Petitioner proposes partially construing the term as “includ[ing] locations that are more recently resolved by the mobile device.” Reply 4. Petitioner argues that the term can include locations that are spatially identical to previously reported locations as long as they are more recently resolved. *Id.*

We do not need to resolve this claim construction dispute because the parties do not identify how the adoption of either party's proposed construction would affect any issue of patentability in this case. Further, we find that it would not, as discussed below.

In particular, the parties dispute whether, for the Estese-based grounds, Petitioner has proven that certain disclosures in Estese teach, or would motivate an ordinarily skilled artisan to modify, Estese, to have its Internet radio source receive recurring reports of new locations. *See, e.g.*, PO Resp. 48–53, Reply 13. The arguments that the parties present for that limitation for the Estese-based grounds, however, do not rely on any either party's proposed partial construction for “new locations.” *See* Section II.D.2.b below. Further, our analysis of that limitation for those grounds is not affected by the adoption or rejection of either party's proposed construction. *See* Section II.D.2.e below. Thus, we do not need to construe the term “new locations.”

*3. Whether Recurring Location Reports Must Be Received Before
Selecting an Advertisement*

Patent Owner proposes that limitation 1.2 should be partially construed to require that recurring location reports be received before an advertisement is selected. PO Resp. 18. Patent Owner relies solely on the language of claim 1 and its expert's interpretation of that language for this partial construction. *Id.* at 18–19. Patent Owner argues that limitation 1.4 recites that an advertisement is selected by Internet radio source using at least one of the reported locations. *Id.* Patent Owner contends that, thus, the step for receiving location reports must occur before the step in which the advertisement is selected. *Id.* at 18–19.

Petitioner disputes that the language of claim 1 requires the receipt of multiple reports before selecting an advertisement. Reply 9. Petitioner argues that claim 1 does not contain any language that requires consideration of multiple reports to select one location. *Id.* at 9–10. Petitioner also argues that the '684 patent does not disclose selecting a location from multiple reports. *Id.* Petitioner does not propose an alternative construction. *Id.* In its Sur-reply, Patent Owner reiterates its argument that limitation 1.2 requires receiving recurring location reports before selecting an advertisement. Sur-reply 9–11.

We agree with Petitioner that claim 1 does not require that recurring location *reports* be provided before selecting an advertisement. Limitation 1.4 recites an advertisement being selected³ using one of the *reported locations*. This recitation could imply that more than one location has been received before the advertisement is selected. Claim 1, however, does not limit its cited reports to those that report only one location. Claim 1 merely recites that the location reports report new locations, which permits a single report to report more than one location (e.g., the locations of the mobile device at different times). Thus, even if multiple *locations* must be received before selecting an advertisement in claim 1, the receipt of multiple *reports* is not required.

³ Claim 1 does not recite selecting as a separate step. Rather, the claim recites “streaming from the Internet radio source to the mobile device during the advertising break at least one advertisement selected by the Internet radio source using at least one of the reported locations and a duration indicator indicating a duration of the advertising break.” Thus, the only timing requirement specified in the claim for the selecting is that the advertisement be selected prior to the streaming of that advertisement.

Thus, we do not construe limitation 1.2 (or claim 1) as requiring that recurring location reports be received before an advertisement is selected. Neither party has expressly requested that we construe claim 1 as requiring the receipt of more than one new location before selecting an advertisement, and we do not need to independently construe the claim as having such a requirement. Regardless, as set forth in Section II.B.3.c.ii. below, the adoption of such a construction would not affect our analysis of the Rittmaster-based grounds—the grounds for which Patent Owner relies on its proposed construction that claim 1 requires the receipt of multiple reports before selecting an advertisement. PO Resp. 29–31.

II. ASSERTED GROUNDS

Petitioner challenges claims 1–9 based on the grounds in the table below.

Claims Challenged	35 U.S.C. §	References
1, 5–9	103	Rittmaster, ⁴ Duvall ⁵
1, 2, 5–9	103	Estese, ⁶ Duvall
1, 2, 5–9	103	Estese, Hoshino ⁷
1, 5–9	103	Rittmaster, Duvall, Hoshino

⁴ U.S. Patent Application Publication No. 2002/0023010 A1, published February 21, 2002 (Ex. 1007).

⁵ International Patent Application Publication No. WO 02/17591 A2, published February 28, 2002 (Ex. 1008).

⁶ U.S. Patent Application Publication No. 2004/0176999 A1, published September 9, 2004 (Ex. 1006).

⁷ U.S. Patent Application Publication No. 2003/0177490 A1, published September 18, 2003 (Ex. 1009).

Claims Challenged	35 U.S.C. §	References
3, 4	103	Estese, Duvall, Zellner ⁸
3, 4	103	Rittmaster, Duvall, Zellner
3, 4	103	Estese, Hoshino, Zellner
3, 4	103	Rittmaster, Duvall, Hoshino, Zellner

Pet. 3. Petitioner relies on the Declaration of Anthony J. Wechselberger in Support of *Inter Partes* Review of U.S. Patent 8,948,684 (Ex. 1011) and on the Declaration of Anthony J. Wechselberger In Support of Petitioner’s Reply to Patent Owner’s Response (Ex. 1017). Patent Owner relies on the Declaration of Dr. Vernon Thomas Rhyne, III (Ex. 2002).

A. Secondary Considerations

Neither party has argued that secondary considerations or objective evidence of nonobviousness exists. Thus, we do not address secondary considerations or objective evidence of nonobviousness in the analyses below.

B. Asserted Obviousness over Rittmaster and Duvall

Petitioner asserts that claims 1 and 5–9 would have been obvious over Rittmaster and Duvall. Pet. 50.

1. Rittmaster

Rittmaster is directed to “distribution of information on the Internet or World Wide Web, based on the geographic location of the internet or web user requesting the information and/or the geographic location of the information provider.” Ex. 1007 ¶ 2. Rittmaster reports that “[t]he Internet and World Wide Web (WWW) have opened vast new global marketplaces

⁸ U.S. Patent No. 6,675,017 B1, issued January 6, 2004 (Ex. 1010).

and opportunities for companies, organizations, institutions and individuals to distribute and obtain information and to interact verbally and visually with others, virtually on a world-wide basis.” *Id.* ¶ 3. But Rittmaster indicates that “such a geographically expansive marketplace can be problematic for contexts in which the information, products or services are intended for a particular geographic area or location.” *Id.* ¶ 4. An example is a software distribution company that wants to “employ the Internet or WWW as a distribution channel, but would need to limit sales (and access to the distributed software) to only those Internet users (customers) that are located within the region assigned to that company.” *Id.* ¶ 5. To address this, Rittmaster discloses a system for “limiting distribution of information on a communications network based on geographic location.” *Id.* ¶ 9.

Figure 2 of Rittmaster is reproduced below:

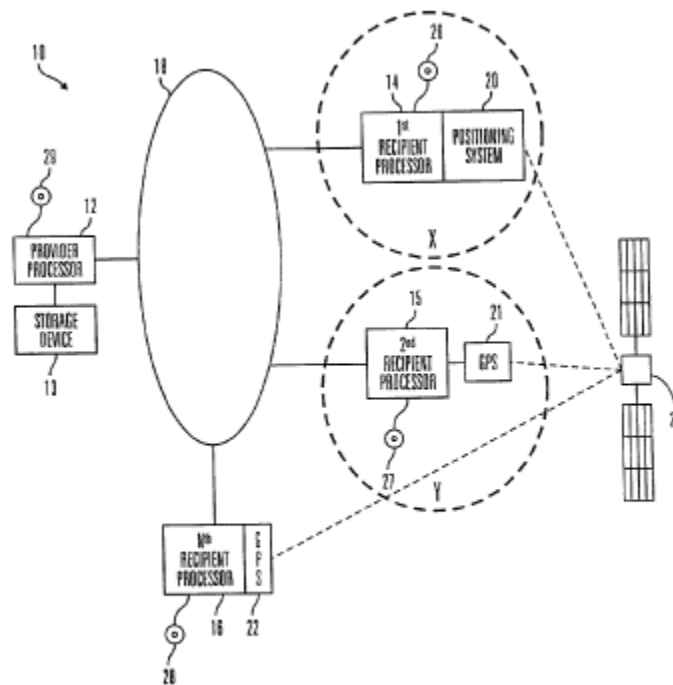


FIG. 2

Figure 2 above shows system 10 with provider processor 12, first recipient processor 14, second recipient processor 15, Nth recipient processor 16, network 18, and satellite 24. Ex. 1007 ¶¶ 36, 44. In this system, each user device communicates geographic information to provider processor 12. *Id.* ¶ 50. Processor 12 “is operated under the control of associated server software 29 to selectively provide or deny a given user device 14–16 access to a product or service dependent upon the geographic information provided by the given user device.” *Id.* Alternatively, geographic control can be affected by user software. *Id.*

Rittmaster discloses that user devices can be “controlled by software 26–28 to periodically (or otherwise successively) communicate locations and/or time information generated by the associated positioning system 20–22 during a communication interchange between the provider server 12 and the user device.” Ex. 1007 ¶ 69.

Rittmaster further discloses an embodiment where a user accesses “a continuous stream of content, such as viewing a movie, show, television program, video game, radio or other transmission.” Ex. 1007 ¶ 132. “[T]he primary content program, for example, the movie or video game, is segmented into time frames such that breaks occur in the viewing or playing of the primary program.” *Id.* “Commercials or advertisements are introduced during each break between segments.” *Id.* “[T]he selection of the commercial, promotional or informational content to include in the interleaved break(s) may be determined, in whole or part, by the physical location of the user.” *Id.* This embodiment can employ the other embodiments described in Rittmaster “for controlling content based on the geographic location of the user (recipient processor), to control the

communication of commercial or advertisement content to the user (recipient processor) during the interleaved breaks in the primary content.”
Id.

2. Duvall

Duvall is directed to “a technique for data item replacement in a media stream (e.g., a particular channel) of a streaming media (e.g., radio or television).” Ex. 1008, 1. Figure 1 of Duvall, reproduced below, shows a distributed computer system (*id.* at 7):

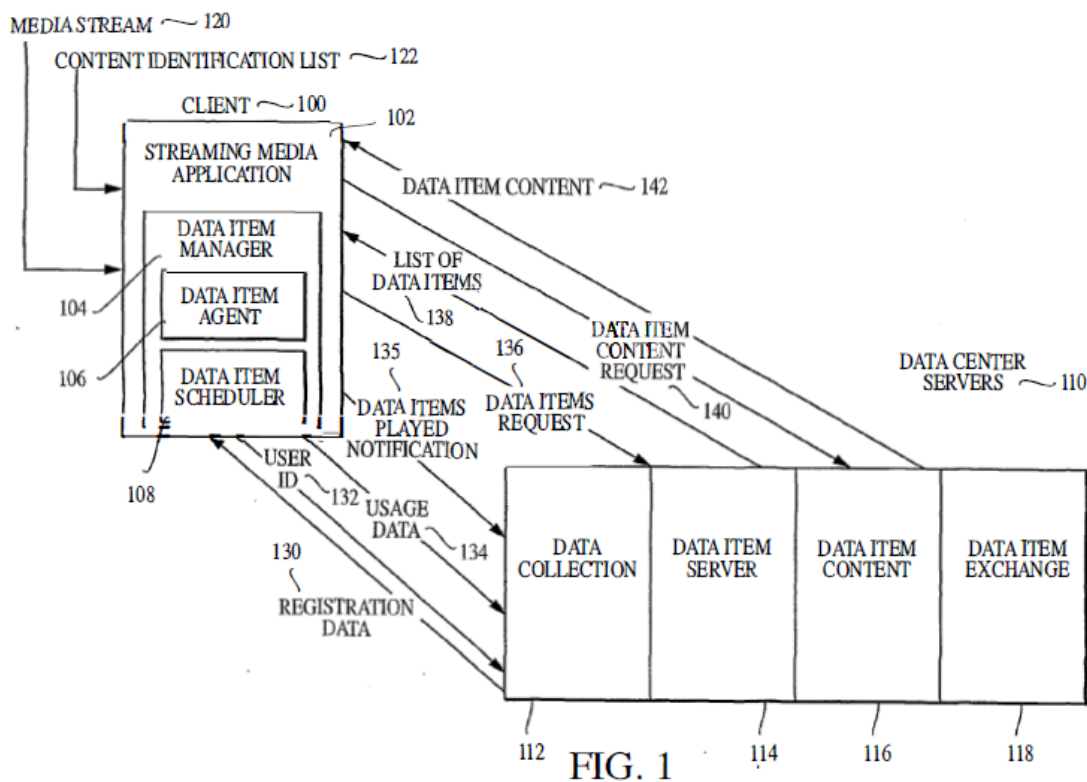


Figure 1 above shows client computer 100 communicating with data center servers 110. *Id.* Client computer 100 includes streaming media application 102, which includes data item scheduler 108 and which receives media stream 120. *Id.* at 7–8. As streaming media application 102 receives media stream 120, data item scheduler 108 uses queue points to determine starting

points of, for example, commercial breaks. *Id.* at 8. When media stream 120 is played and “a queue point is reached, which indicates that, for example, a commercial break of a certain duration is to occur, the Data Item Scheduler 108 intelligently chooses one or more cached data items of that duration to play in lieu of items already embedded in the stream.” *Id.* at 9.

3. *Claim 1*

a. *A method for streaming localized content to a mobile device during an advertising break in an Internet radio stream.*

Petitioner argues that, to the extent the preamble of claim 1 is limiting, Rittmaster teaches or suggests the preamble by providing commercial, promotional, or informational content during breaks of a continuous stream of content, such as radio over the Internet. Pet. 50. Patent Owner provides no counterargument. *See generally* PO Resp. After reviewing the record, we determine that Rittmaster teaches the preamble of claim 1.⁹

b. *[1.1] streaming from an Internet radio source to a mobile device an Internet radio stream;*

Petitioner argues that Rittmaster teaches or suggests limitation 1.1 by disclosing that provider server 12 streams content, such as radio over the Internet, to users carrying probable communication devices 14–16. Pet. 51. Patent Owner provides no counterargument. *See generally* PO Resp. After reviewing the record, we determine that Rittmaster teaches limitation 1.1.

⁹ For this reason, we do not need to determine whether the preamble of claim 1 is limiting.

c. [1.2] receiving by the Internet radio source from the mobile device recurring location reports reporting new locations of the mobile device resolved by the mobile device;

i. Parties' Arguments

Petitioner argues that Rittmaster teaches or suggests limitation 1.2.

Pet. 51. Petitioner argues that “user devices 14–16 . . . communicate geographic information to the provider device,” and the location information is transmitted “periodically (or otherwise successively)” to keep track of the user’s location over time. *Id.* (quoting or citing Ex. 1007 ¶¶ 50, 69–70, 127). Petitioner further argues that the user’s device contains a “positioning system” such as a “Global Positioning System GPS 20–22” for obtaining the location information that is transmitted to and received by the provider server. *Id.* (quoting or citing Ex. 1007 ¶¶ 44, 47).

Patent Owner argues that limitation 1.2 should be construed to require that the “recurring location reports” be received before an advertisement is selected by the Internet radio source, as recited in limitation 1.4.

PO Resp. 29. Patent Owner contends that, with that construction, Rittmaster would not satisfy limitation 1.2. *Id.* at 29–31.

Patent Owner also argues that Petitioner improperly relies on two distinct classes of embodiments in Rittmaster for limitations 1.2 and 1.4.

PO Resp. 31. Patent Owner argues that the embodiments in Figures 3–9 of Rittmaster relate to systems for granting or denying access to services or digital content. *Id.* at 32. Further, Patent Owner asserts that the embodiment of Figure 10 relates to selecting content to send to a user based on the user’s location. *Id.* Patent Owner asserts that Petitioner relies on the first class of embodiments for limitation 1.2 and on the second class of embodiments for

limitation 1.4. *Id.* Further, Patent Owner asserts that Petitioner has not set forth a rationale for combining these classes of embodiments. *Id.*

Petitioner responds that, although Rittmaster discloses two classes of embodiments, Figures 2–10 of Rittmaster belong to the same class. Reply 11. Petitioner asserts that Figures 2–10 are directed to “Distribution Based on Location of Recipient,” and Figure 12 is directed to “Distribution Based on Location of Provider. *Id.* Patent Owner responds, arguing that two different types of inventions are disclosed under the heading in Rittmaster of “Distribution Based on Location of Recipient.” Sur-reply 12. Patent Owner also argues that the numbered elements in Figure 2 that are not also in Figure 1 are not shown in Figure 10. *Id.* at 13. In its Sur-reply, Patent Owner implicitly offers a new construction regarding the purportedly required sequence with limitation 1.2, stating “the claim requires the Internet radio source to receive reported locations (plural) before selecting an advertisement.” *Id.* at 11.

ii. Sequence

As set forth in Section I.E.3 above, we declined to adopt Patent Owner’s proposed construction that limitation 1.2 requires that recurring location reports be received before an advertisement is selected by the Internet radio source. Thus, Rittmaster and Duvall’s alleged failure to teach or suggest receiving recurring location reports before an advertisement is selected by the Internet radio source does not undermine Petitioner’s showing for claim 1.

As mentioned, however, in its Sur-reply, Patent Owner implicitly offers a different construction regarding a required sequence with limitation 1.2: “the claim requires the Internet radio source to receive reported

locations (plural) before selecting an advertisement.” Sur-Reply 11. With this implicit construction, *reported locations*, rather than *recurring location reports*, must be received before selecting an advertisement. This proposed construction, however, is untimely. Trial Practice Guide¹⁰ 74. Thus, we decline to consider that proposed construction on that basis. *Id.*

Nevertheless, if we were to consider and adopt this new construction, on this record, we would find that Rittmaster suggests limitation 1.2.

Rittmaster discloses a user device periodically providing location information “while the requested content is being communicated to the user device in, what appears to the user as, a continuous stream.” Ex. 1007 ¶ 70. Rittmaster further discloses adjusting the stream of content, in particular cutting it off, if a user’s location does not correspond to an expected location. *Id.* Further, Rittmaster teaches that the stream of content can be lengthy. *Id.* Rittmaster also discloses using the geographic location of the user to control advertisement content to the user. *Id.* ¶¶ 131–132.

Combined, these disclosures suggest repeatedly reporting new geographic locations of a user during the streaming of lengthy content and then selecting an advertisement based on the new location of the user when the new location would call for different advertisements, which would satisfy limitation 1.2 as implicitly construed by Patent Owner in its Sur-reply: the advertisement would be selected after new locations of the user had been reported.

¹⁰ Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019), 73–74, *available at* <https://www.uspto.gov/TrialPracticeGuideConsolidated> (“Trial Practice Guide”).

iii. Rittmaster's Embodiments

We agree with Petitioner that it did not improperly combine embodiments of Rittmaster. The embodiments of Figures 1–9 and of Figure 10, cited by Petitioner, are related, and an ordinarily skilled artisan would consider them together.

Rittmaster describes each of these embodiments under the same heading in its textual description: “Distribution Based on Location of Recipient.” Ex. 1007 ¶ 34. And neither party has argued that description is inaccurate. Given the description of these figures, an ordinarily skilled artisan would consider their disclosures together. Rittmaster describes Figure 10 as “a generalized representation of a shopping area which *employs* a system according to an embodiment of the present invention.” Ex. 1007 ¶ 27 (emphasis added). The embodiments being referred to are the embodiments illustrated in preceding Figures 1–9. Rittmaster describes that, in Figure 10: “[c]ontent may then be provided to the user, based on the geographic location of the user’s portable communication device, *in accordance with any of the above described processes.*” *Id.* ¶ 127. The above processes are disclosed in Figures 3–9 and a system in which those processes can run is disclosed in Figure 2. Rittmaster specifically provides examples how the processes of Figures 5–9 can be used in the embodiment of Figure 10. *Id.* Figure 3 is described as an operational process, and Figures 4a and 4b describe schemes for carrying out step 3 of Figure 3. *Id.* ¶¶ 51, 67. Further, in describing the processes of Figures 3 and 5–7, Rittmaster refers to the system depicted in Figure 2. *See id.* ¶¶ 71 (describing Figures 5 and 6, Rittmaster refers to elements 12, 14–16, 26, 28,

29 in Figure 2), 84–85 (describing Figure 7, referring to elements 14–16, 20–22 in Figure 2).

The fact that some of the numbered elements in Figure 2 do not appear in Figure 10 would not discourage an ordinarily skilled artisan from consulting the teachings of Figure 2 to understand the disclosure of Figure 10. Figure 2 in Rittmaster is “a generalized schematic view of a *system* according to an embodiment of the present invention.” Ex. 1007 ¶ 18 (emphasis added). Figure 10 is “a generalized representation of a shopping area *which employs a system* according to an embodiment of the present invention.” *Id.* ¶ 27 (emphasis added). The fact that the figures depicting the system (Figure 2) and a shopping area employing the system (Figure 10) illustrate different elements would be expected given the differences in what they illustrate. But to understand the system used in the shopping area of Figure 10, an ordinarily skilled artisan would look to the description of Figure 2. *Id.* ¶¶ 17, 27.

Under the circumstances, we find that the embodiments of Figures 2–10 are related, and Petitioner’s reliance on the combined disclosures of those embodiments was proper.

iv. Summary

As indicated, Patent Owner does not provide any counterarguments for limitation 1.2 other than the sequence argument addressed above and its argument that Petitioner improperly relied on multiple embodiments in Rittmaster. After reviewing the record, we determine that Petitioner has proven that Rittmaster teaches limitation 1.2.

d. [1.3] detecting electronically by the Internet radio source a marker indicating a start of an advertising break in the Internet radio stream;

Petitioner argues that Rittmaster and Duvall teach or suggest limitation 1.3. Pet. 53. Petitioner asserts that Rittmaster teaches introducing commercials or advertisements during each break between segments, so the user receives those commercials or advertisements during the interleaved breaks in the primary content. *Id.* at 53–54. Further, Petitioner argues that the provider server introduces the content during the breaks. *Id.* at 54. Petitioner further contends that Duvall teaches the detection of queue points to determine the starting points of commercial breaks. *Id.* Petitioner argues that these queue points indicate the start of an advertising break and, thus, are the recited “marker[s],” and an ordinarily skilled artisan would have used these queue points with Rittmaster’s server to insert advertising during the interleaved breaks. *Id.*

Patent Owner presents no counterarguments for limitation 1.3. After reviewing the record, we find that Petitioner has proven that Rittmaster and Duvall teach limitation 1.3.

e. [1.4] streaming from the Internet radio source to the mobile device during the advertising break at least one advertisement selected by the Internet radio source using at least one of the reported locations and a duration indicator indicating a duration of the advertising break;

Petitioner asserts that Rittmaster and Duvall teach or suggest limitation 1.4. Pet. 55. Petitioner argues that Figure 2 of Rittmaster provides an example of a recipient-location based system where positioning system 20 of user device 14 provides location information via network 18 (e.g., the Internet) to provide processor 12. *Id.* Petitioner further argues that

Rittmaster teaches at least one advertisement that is interleaved between the content segments using at least one of the reported locations so that the content is based on the geographic location of the user. *Id.* at 56. Further, Petitioner asserts that Rittmaster indicates that localized content should fit between content segments. *Id.* at 57.

Petitioner argues that an ordinarily skilled artisan would have looked to Duvall for implementation details on the selection of advertisements that fit the duration of an advertising break. *Id.* In particular, Petitioner contends that an ordinarily skilled artisan would have incorporated the functions of Duvall's Data Item Scheduler 108 for using content identification list information 122 indicating the length of the advertising break to insert targeted advertising content that fits that duration into the stream (Ex. 1008, 8-9, 24) into the provider server of Rittmaster. *Id.* Petitioner further argues that Duvall explains that its Data Item Replacement System is illustrated with the Data Item Scheduler 108 at the client device selecting locally stored targeted advertisements. *Id.* Petitioner asserts, however, Duvall discloses that the functionalities it discloses would operate in alternative hardware environments and various configurations. *Id.* Further, Petitioner contends that an ordinarily skilled artisan would have been motivated by Rittmaster's disclosure of inserting ads of appropriate duration to incorporate, and would have had a reasonable expectation of success in incorporating, the functionality of Data Item Scheduler 108 to select one or more targeted advertisements based on the duration indicated by content identification list information 122 into the server of Rittmaster. *Id.*

As set forth in Section II.B.3.g.i below, Patent Owner disputes that an ordinarily skilled artisan would have combined Rittmaster's and Duvall's

teachings, and we address those arguments in that section. Further, as set forth in Section II.B.3.c.i above, Patent Owner argues that claim 1 requires “recurring location reports” to be received before an advertisement is selected by the Internet radio source. That argument is partially based on limitation 1.4 because limitation 1.4 recites “at least one advertisement selected by the Internet radio source using at least one of the reported locations.” We, however, addressed that argument in Section II.B.3.c.ii above.

Patent Owner also argues that “Duvall does not disclose selecting an advertisement using ‘a duration indicator indicating a duration of the advertising break’” because its “content identification list information 122 does not disclose the duration of any dead period.” PO Resp. 34–35; Sur-reply 18. We disagree with Patent Owner that the term “advertising break” should be interpreted to mean a dead period in a radio transmission, as explained above in Section I.E.1.b.

Patent Owner does not provide any other counterarguments concerning limitation 1.4.

After reviewing the record, we find that Petitioner has proven that Rittmaster and Duvall teach limitation 1.4.

f. [1.5] resuming by the Internet radio source streaming to the mobile device of the Internet radio stream after the advertising break.

Petitioner argues that Rittmaster teaches or suggests limitation 1.5. Pet. 58. Petitioner asserts that Rittmaster discloses that the targeted advertisement is inserted into the media stream to provide the user a “continuous stream of content.” *Id.* (quoting Ex. 1007 ¶ 132). Petitioner further quotes Rittmaster’s disclosure that: “[c]ommercials or advertisements

are introduced during each break between segments,” such that the next segment of the programming content resumes after the advertising break. *Id.* (quoting Ex. 1007 ¶ 132).

Patent Owner provides no counterarguments for this limitation. After reviewing the record, we determine that Petitioner has proven that Rittmaster teaches limitation 1.5.

g. Motivation to Combine Rittmaster and Duvall

i. Parties’ Arguments

Petitioner argues that Rittmaster and Duvall teach or suggest the selection of advertisements based on the location of a user and the duration of an advertising break. Pet. 21–22. Petitioner argues that to the extent Rittmaster does not provide sufficient details on detecting a marker indicating a start of an advertising break, and to the extent Rittmaster does not provide sufficient details on a duration indicator or how such an indicator would be used to select an advertisement, Duvall discloses such implementation details. *Id.* at 22. Petitioner argues that the motivation to select Duvall would be based on the similarities in the references. *Id.* Petitioner asserts that each of the references is directed to inserting targeted advertising into streaming media, including Internet radio. *Id.* Petitioner further argues that an ordinarily skilled artisan would have been motivated to combine the two references’ teachings based on the known benefits of selecting advertising based on both duration and location (e.g., targeted advertising that fits the break duration and meets the advertiser’s needs) and the drawbacks of selecting advertising based only on one of duration or location (e.g., advertisements that did not reach the target audience, advertising that did not fit the length of the break). *Id.* at 23.

Petitioner further argues that Rittmaster describes a known base device and system for providing local advertisements during a break that an ordinarily skilled artisan would have recognized as being ready for the improvement of providing advertisements to fit various durations of breaks, given, for example, the similarities in Rittmaster's disclosure to that of Duvall. Pet. 23–24. Further, Petitioner argues that Duvall discloses the known technique of selecting advertisements that fit the duration of the break when the break duration and/or advertising content has varying lengths. *Id.* at 24. Petitioner further argues that an ordinarily skilled artisan would have applied this known improvement to Rittmaster in the same way as it is used in Duvall to provide the predictable result of allowing Rittmaster to provide targeted advertisements for breaks of various durations. *Id.*

Petitioner argues that an ordinarily skilled artisan would have had a reasonable expectation of success in applying Duvall's teachings to Rittmaster's system because Duvall uses local storage of the advertising options in its client-side system in a manner similar to the storage of advertisements in the server-side system of Rittmaster. Pet. 25–26. Petitioner cites as support the testimony of Mr. Wechselberger. Ex. 1011 ¶¶ 46–50.

Patent Owner argues that an ordinarily skilled artisan would not have combined Rittmaster and Duvall in the manner proposed by Petitioner because that combination would require substantial reconstruction and redesign of Rittmaster. PO Resp. 38. Patent Owner asserts that Rittmaster discloses inserting advertisements into reserved time frames and sending each user a stream that is crafted for that user. *Id.* at 38–39. Further, Patent Owner asserts that this server-side content insertion system is not

interchangeable with the client-side content replacement system of Duvall. *Id.* at 39.

Petitioner responds that it is not proposing a bodily combination of Rittmaster's server and Duvall's client device. Reply 19–20. Petitioner further argues that an ordinarily skilled artisan would have recognized that both systems require information on when a break starts, and implementation details on how a start marker from Duvall would be readily implemented in the server-side system that Rittmaster discloses. *Id.* at 20.

Patent Owner responds that the identifiers in Duvall and Rittmaster do not serve the same functions. Sur-reply 19. Patent Owner contends that Duvall's identification list provides information on which portions of a media stream to “mute” and overwrite with alternate data. *Id.* Patent Owner further argues that Rittmaster uses identifiers to locate time slots to insert data. *Id.* Further, Patent Owner contends that, because the identifiers do not serve the same function, substantial reconstruction would be required to make the concepts of Duvall useful in the context of Rittmaster. *Id.*

ii. Analysis

We agree with Petitioner that an ordinarily skilled artisan would have been motivated to combine Rittmaster's and Duvall's teachings, would have had a reasonable expectation of success in making that combination, and would not, as Patent Owner argued, have had to substantially reconstruct and redesign Rittmaster to do so.

We credit Mr. Wechselberger's testimony that an ordinarily skilled artisan would have been motivated to combine the teachings of Rittmaster and Duvall with a reasonable expectation of success. Ex. 1011 ¶¶ 46–50.

As Mr. Wechselberger explains, Duvall provides the details of how to select an advertisement from the stored advertisements using a duration indicator combined with other factors, such as location. Ex. 1011 ¶¶ 46, 50; Ex. 1008, 8–9, 24. Because Rittmaster’s similar system also selects advertisements based on the user’s location and other criteria to provide advertisements that fit the programming break, an ordinarily skilled artisan would have expected Duvall’s teachings to work in Rittmaster’s system. Ex. 1011 ¶ 50; Ex. 1007 ¶ 132. Duvall provides further details on how to select content that fits the programming breaks, as suggested by Rittmaster. Ex. 1011 ¶¶ 46, 50; Ex. 1008, 8–9, 24. Duvall discloses how to add or implement a variable duration indicator to a system for providing targeted content to users, like the system of Rittmaster. Ex. 1011 ¶¶ 46, 50; Ex. 1008, 8–9, 24. And an ordinarily skilled artisan would have had a reasonable expectation of success in applying Duvall’s teachings to Rittmaster’s system because Duvall uses local storage of the advertising options in its client-side system in a manner similar to the storage of advertisements in the server-side system of Rittmaster. Ex. 1011 ¶ 50; Ex. 1008, 8 (“local cache”); Ex. 1007, Fig. 2, storage device 13, ¶ 56 (“downloads to the user device”).

We do not credit Dr. Rhyne’s testimony that combining the teachings of Rittmaster and Duvall would have required a substantial redesign of Rittmaster. Ex. 2002 ¶¶ 90–92.¹¹ Regarding this issue, Dr. Rhyne testifies:

¹¹ In paragraph 90, Dr. Rhyne refers to the substantial reconstruction of Estese, but the reference to Estese appears to be a typographical error. This section of his declaration addresses the combination of Rittmaster and Duvall.

Rittmaster would require fundamental reconstruction to incorporate Duvall's content identification list information 122 because Duvall's content identification list information 122 only identifies advertisement data already embedded in a data stream. Rittmaster teaches using time frames during which content such as an advertisement may be inserted. *See* Rittmaster at [0132]; Ex. 2001 at 33, lines 20–24. Like Estese, Rittmaster is a system where time frames or windows allow customization by interleaving location-based advertisements into the frame before delivering it to the recipient. Rittmaster at [0132]. To use Duvall's content identification list information 122, which identifies advertisement spots that are already part of a media stream, would thus require replacing the frame structure of Rittmaster with a full media stream that could then be overwritten—or in the terminology of Duvall, “muted”—in specific locations when told to by content identification list information 122.

Ex. 2002 ¶ 92. We do not credit this testimony because it concerns bodily incorporating Duvall into Rittmaster. *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). Petitioner and Mr. Wechselberger do not propose replacing the frame structure of Rittmaster with a full media stream. Instead, Petitioner and Mr. Wechselberger propose taking the functionality of Duvall's Data Item Scheduler 108 to indicate the length of the advertising break to insert targeted advertising content that fits that duration into the stream. Reply 19–20; Ex. 1011 ¶¶ 46, 70. Dr. Rhyne has not set forth any credible testimony indicating that adopting that functionality, rather than replacing Rittmaster's frame structure, would require substantial reconstruction of Rittmaster. Ex. 2002 ¶¶ 90–92. Nor has Patent Owner presented any other credible evidence indicating that adding the involved functionality to Rittmaster would require a substantial reconstruction of Rittmaster's system. PO Resp. 38–41; Sur-reply 18–19.

In sum, after reviewing the record, we determine that an ordinarily skilled artisan would have been motivated to combine Rittmaster's and Duvall's teachings, would have had a reasonable expectation of success in making that combination, and would not have had to substantially reconstruct and redesign Rittmaster to do so.

h. Summary

In sum, we determine that Petitioner has proven that claim 1 would have been obvious over Rittmaster and Duvall.

5. Claim 5

Claim 5 depends from claim 1 and further recites "wherein the reported locations comprise global positioning system (GPS) locations" ("limitation 5.0"). Petitioner argues that Rittmaster teaches or suggests limitation 5.0 by disclosing "in preferred embodiments, the geographic location information is generated by a means . . . such as a global positioning system GPS." Pet. 58 (quoting Ex. 1007 ¶ 12).

Patent Owner does not provide any counterarguments for limitation 5.0 and does not separately argue claim 5 from claim 1. PO Resp. 38–41.

After reviewing the record, we determine that Petitioner has proven that Rittmaster teaches limitation 5.0. We further determine that Petitioner has proven that claim 5 would have been obvious over Rittmaster and Duvall.

6. Claim 6

Claim 6 is an independent claim that shares many common recitations with claim 1. A comparison between claim 6 and claim 1, with differences between the claims emphasized, is set forth below:

Claim 6	Claim 1
6. A method for streaming localized content to a mobile device during a <i>break</i> in an Internet radio stream, comprising:	A method for streaming localized content to a mobile device during an <i>advertising break</i> in an Internet radio stream, comprising:
streaming from an Internet radio source to a mobile device an Internet radio stream;	streaming from an Internet radio source to a mobile device an Internet radio stream;
receiving by the Internet radio source from the mobile device a <i>location report</i> reporting a <i>location</i> of the mobile device;	receiving by the Internet radio source from the mobile device recurring <i>location reports</i> reporting <i>new locations</i> of the mobile device <i>resolved by the mobile device</i> ;
detecting electronically by the Internet radio source a marker indicating a start of a <i>break</i> in the Internet radio stream;	detecting electronically by the Internet radio source a marker indicating a start of an <i>advertising break</i> in the Internet radio stream;
streaming from the Internet radio source to the mobile device during the <i>break</i> local <i>political content</i> selected by the Internet radio source using the reported location and a duration indicator indicating a duration of the <i>break</i> ; and	streaming from the Internet radio source to the mobile device during the <i>advertising break</i> at least one <i>advertisement</i> selected by the Internet radio source using at least one of the reported locations and a duration indicator indicating a duration of the <i>advertising break</i> ; and
resuming by the Internet radio source streaming to the mobile device of the Internet radio stream after the <i>break</i> .	resuming by the Internet radio source streaming to the mobile device of the Internet radio stream after the <i>advertising break</i> .

For the recitations of claim 6 that are also recited in claim 1, Petitioner relies on its showing for claim 1. Pet. 58–59. For the recited “receiving . . .

a location report reporting a location of the mobile device” in claim 6, Petitioner relies on its showing for “receiving . . . location reports reporting new locations of the mobile device resolved by the mobile device” in claim 1. *Id.* For the recited “break” in claim 6, Petitioner relies on its showing regarding breaks that it made for the recited “an advertising break” in claim 1. *Id.* For the recited “streaming . . . during the break local political content,” Petitioner argues that the following disclosures in Rittmaster teach or suggest that limitation:

(i) “consider a company, organization or individual involved in distributing information having a content that is *politically* or *ethically sensitive* in certain geographic regions but not other geographic regions. Again, the company, organization or individual may desire to provide the information over the Internet but, for *political*, ethical or legal reasons, may also desire to limit the accessibility to the information to certain geographic regions.” (Ex. 1007 ¶ 7) (emphasis added);

(ii) “Such information may include, but is not limited to, data, text or image information including software programs, for example, having different market, legal, political, social, ethical or moral implications in different geographic regions. In preferred embodiments of the present invention, access to the information by the recipient processors 14-16 is controlled, based on the geographic location or region of the recipient processors, the provider processor or both.” (Ex. 1007 ¶ 33); and

(iii) “the ability to present . . . informational content to a user that is pertinent to the user's physical location . . . can be beneficial to both the user and the advertiser.” (Ex. 1007 ¶ 131).

Pet. 59. Petitioner asserts that the above disclosures in combination with the disclosures it cites from Rittmaster and Duvall for claim 1 render claim 6 obvious. *Id.*

Patent Owner presents no counterarguments that are specific to claim 6, and Patent Owner does not separately argue claim 6. In Section II.B.3 above, we addressed Patent Owner's counterarguments for claim 1.

After reviewing the record, we determine that Petitioner has proven that claim 6 would have been obvious over Rittmaster and Duvall.

7. Claim 7

Claim 7 differs from claim 6 as follows. Claim 7 recites "streaming . . . a local news report," whereas claim 6 recites "streaming . . . local political content."

Petitioner argues that the following disclosures in Rittmaster teach or suggest the recited streaming of local political content:

(i) "the ability to present . . . informational content to a user that is pertinent to the user's physical location . . . can be beneficial to both the user and the advertiser." (Ex. 1007 ¶ 131); and

(ii) "In one embodiment, the web site provides entertainment content as the primary content, such as, . . . news . . . One or more interleaved breaks in the primary content are provided for displaying advertisement, promotional or informational content as described above." (Ex. 1007 ¶ 136).

Pet. 59. Petitioner argues that the above disclosures in combination with the disclosures it cited from Rittmaster and Duvall for claim 1 render claim 7 obvious. *Id.*

Patent Owner presents no counterarguments that are specific to claims 6 or 7 and does not separately argue claim 7. In Section II.B.3 above, we addressed Patent Owner's counterarguments for claim 1.

After reviewing the record, we determine that Petitioner has proven that claim 7 would have been obvious over Rittmaster and Duvall.

8. Claim 8

Claim 8 differs from claim 6 as follows. Claim 8 recites “streaming . . . a local traffic report,” whereas claims 6 recites “streaming . . . local political content.”

Petitioner argues that the following disclosures in Rittmaster teach or suggest the recited streaming of a traffic report:

(i) “the ability to present . . . informational content to a user that is pertinent to the user's physical location . . . can be beneficial to both the user and the advertiser.” (Ex. 1007 ¶ 131); and

(ii) “In one embodiment, the web site provides entertainment content as the primary content, such as, . . . traffic information One or more interleaved breaks in the primary content are provided for displaying . . . informational content as described above.” (Ex. 1007 ¶ 136).

Pet. 59. Petitioner argues that these disclosures in combination with the disclosures it cited from Rittmaster and Duvall for claim 1 render claim 8 obvious. *Id.*

Patent Owner presents no counterarguments that are specific to claims 6 or 8, and Patent Owner does not separately argue claim 8. In Section II.B.3 above, we addressed Patent Owner’s counterarguments for claim 1.

After reviewing the record, we determine that Petitioner has proven that claim 8 would have been obvious over Rittmaster and Duvall.

9. Claim 9

Claim 9 differs from claim 6 as follows. Claim 9 recites “streaming . . . a local weather report,” whereas claims 6 recites “streaming . . . local political content.”

Petitioner argues that the following disclosures in Rittmaster teach or suggest the recited streaming of a weather report:

(i) “the ability to present . . . informational content to a user that is pertinent to the user’s physical location . . . can be beneficial to both the user and the advertiser.” (Ex. 1007 ¶ 131); and

(ii) “In one embodiment, the web site provides entertainment content as the primary content, such as . . . weather information One or more interleaved breaks in the primary content are provided for displaying . . . informational content as described above.” (Ex. 1007 ¶ 136).

Pet. 59. Petitioner argues that the above disclosures in combination with the disclosures it cited from Rittmaster and Duvall for claim 1 render claim 9 obvious. *Id.*

Patent Owner presents no counterarguments that are specific to claims 6 or 9, and Patent Owner does not separately argue claim 9. In Section II.B.3 above, we addressed Patent Owner’s counterarguments for claim 1.

After reviewing the record, we determine that Petitioner has proven that claim 9 would have been obvious over Rittmaster and Duvall.

C. Asserted Obviousness over Rittmaster, Duvall, and Zellner

Petitioner argues that claims 3 and 4 would have been obvious over Rittmaster, Duvall, and Zellner. Pet. 64–66.

1. Zellner

Zellner discloses a “location blocking service” that allows a user “to prevent the location of her wireless handheld device from being disclosed.” Ex 1010, Abstract. Zellner contemplates that this functionality for a mobile device has many applications, including to allow or prevent “targeted advertisements” from being directed to the mobile device. *Id.* at 2:33–42.

2. Claim 3

Claim 3 depends on claim 1 and further recites “receiving on the mobile device through user interaction with a location reporting selection

feature a selection enabling location reporting from the mobile device to the Internet radio source” (“limitation 3.0”).

Petitioner argues that Rittmaster and Zellner teach or suggest limitation 3.0. Petitioner asserts that Rittmaster teaches or suggests allowing the user to enable sending location information by allowing the user to decide whether to manually enter location information. *Id.* at 64–65 (citing Ex. 1007 ¶ 43). Further, Petitioner argues that Zellner teaches allowing a user to enable location reporting from a mobile device to a centralized server. *Id.* at 65. Petitioner notes that Zellner discloses that “[t]he user interface” of the mobile device “accepts user commands” to “de-activate location blocking.” *Id.* (quoting and citing Ex. 1010, 3:14–26, 5:65–6:3). Petitioner asserts that Zellner allows the user to enter commands to “suspend[] location blocking.” *Id.* (quoting Ex. 1010, 5:65–6:3). Petitioner further argues that Zellner discloses that “instead of the user selecting whether a location should be transmitted for each transmission, the user can enable location information to be sent ‘for all transmissions,’ thereby ‘establishing default preferences’ for enabling location reporting.” *Id.* (quoting Ex. 1007, 3:59–4:2). Petitioner argues that these disclosures in Rittmaster and Zellner teach limitation 3.0. *Id.*

Patent Owner provides no counterarguments for limitation 3.0. After reviewing the record, we determine that Petitioner has proven that Rittmaster and Zellner teach limitation 3.0.

3. Claim 4

Claim 4 depends from claim 1 and further recites: “receiving on the mobile device through user interaction with a location reporting selection feature a selection disabling location reporting from the mobile device to the

Internet radio source” (“limitation 4.0”). Petitioner argues that Rittmaster and Zellner teach or suggest limitation 4.0. Pet. 65. Petitioner asserts that Rittmaster teaches or suggests allowing a user to disable sending location information by allowing the user to decide whether to manually enter location information. *Id.* at 66 (citing Ex. 1007 ¶ 43). Petitioner further argues that Zellner teaches allowing a user to disable location reporting from a mobile device to a centralized server. *Id.* Petitioner notes that Zellner discloses that “[t]he user interface” of the mobile device “accepts user commands” to “activate location blocking.” *Id.* (quoting and citing Ex. 1010, 3:14–26. Further, Petitioner argues that Zellner allows the user to enter commands to “initiat[e] . . . location blocking.” *Id.* (quoting Ex. 1010, 5:65–6:3). Petitioner further asserts that Zellner discloses that “instead of the user selecting whether a location should be transmitted for each transmission, the user can disable location information to be sent ‘for all transmissions,’ thereby ‘establishing default preferences’ for enabling location reporting.” *Id.* (quoting Ex. 1007, 3:59–4:2). Petitioner argues that these disclosures in Rittmaster and Zellner teach or suggest limitation 4.0. *Id.*

Patent Owner provides no counterarguments for limitation 4.0. After reviewing the record, we determine that Petitioner has proven that Rittmaster and Zellner teach limitation 4.0.

4. Analogous Art

“Prior art is analogous if it is from the same field of endeavor or if it is reasonably pertinent to the particular problem the inventor is trying to solve.” *Circuit Check, Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015). “A reference is reasonably pertinent if . . . it is one which, because of the matter with which it deals, logically would have commended itself to an

inventor’s attention in considering his problem.” *Innovation Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1321 (Fed. Cir. 2011) (citation and internal quotation marks omitted).

a. Parties’ Arguments

Patent Owner argues that Zellner is not analogous art to the ’684 patent. PO Resp. 43. Patent Owner asserts that Zellner is not in the same field as the invention of the ’684 patent. *Id.* Patent Owner further asserts that the ’684 patent relates to “methods and systems for selecting content for outputting on a mobile device during a program break in an Internet radio stream using mobile device location information.” *Id.* at 44 (quoting Ex. 1001, 1:21–24). Patent Owner argues that Zellner, on the other hand, “relates to the field of wireless networks, and in particular, to wireless networks that track the locations and identity of wireless network devices.” *Id.* (quoting Ex. 1010, 1:7–9). According to Patent Owner, because Zellner does not relate to digital content selection or Internet radio streaming based on user location, an ordinarily skilled artisan would not have considered it to be analogous art to the ’684 patent. *Id.*

Patent Owner also argues that Zellner is not reasonably pertinent to the problem addressed in claims 3 and 4. PO Resp. 45. Patent Owner asserts that Zellner is directed to limiting the ability of network providers to sell the user data that the network must collect under the Enhanced 911 (“E911”) standards. *Id.* Patent Owner asserts that “[i]n contrast, [c]laims 3 and 4 . . . relate to a different problem, enabling or disabling the flow of data from a mobile device directly to a third party.” *Id.* at 46. Patent Owner further argues that:

[u]nlike Zellner, the challenged claims do not relate to data collection by a network provider, and the fundamental

relationship between a user and its network provider remains unaltered. Rhyne at ¶ 116. The '684 Patent does not address the privacy concerns raised by E911 requirements (i.e., the sale of personal data by a network provider), and Claims 3 and 4 do not address location data forwarding like Zellner does.

Id.

Petitioner argues that Zellner is analogous art “because it is directly pertinent to the problem the inventor was trying to solve for the inventions of claims 3 and 4, namely, how to give users control over their location data, including how ‘to allow or prevent ‘targeted advertisements’ from being directed to the mobile device.” Reply 22. Petitioner argues that “the fact that Zellner considers the specific use-case contemplated by the claims (i.e., preventing targeted advertising) but also has the forethought to address the E911 requirements would only add to the reasons for [an ordinarily skilled artisan] to look to Zellner.” *Id.*

In response, Patent Owner argues that Zellner is not analogous art because it relates to “controlling the type of data collection that a network provider may routinely perform.” Sur-reply 20.

b. Analysis

We determine that Zellner is reasonably pertinent to a particular problem that the inventors of the '684 patent were trying to solve (and thus need not determine whether Zellner is in the same field of endeavor as the '684 patent). Claims 3 and 4 are directed to a selection by a user that enables or disables the reporting of locations from the mobile device to the Internet radio source. This is reflected in the Specification, which discloses that the problem the inventors were trying to solve with this selection was to protect privacy in a system where the location of the user could be tracked to provide content: “to protect privacy, communication client 310 may provide

a user with the ability to enable (opt-in) or disable (opt-out) provision of location information to Internet radio source 120.” Ex. 1001, 5:65–6:1.

Patent Owner acknowledges that the cited portion of the Specification describes a problem where, “if someone’s very concerned about their personal location information, they may not want a product that is constantly allowing location information to be transmitted to the radio source provider.” Tr. 53:5–13; *see also* Tr. 52:18–53:4.

Zellner is reasonably pertinent to the privacy problem that the ’684 patent inventors addressed because Zellner discloses protecting a user’s privacy by allowing the user to decide whether his or her location information shall be transmitted in systems that track the locations of the user’s mobile device. Zellner discloses that: “[t]he present invention relates to the field of wireless networks, and in particular, to wireless networks that track the location and identity of wireless network device.” Ex. 1010, 1:7–10. Zellner addresses the privacy concerns with such tracking: “most wireless device users view their location and identity information as intimately private, and express strong reservations against involuntary and automatic disclosure of such information.” *Id.* at 1:47–50. To address those privacy concerns, Zellner discloses a method that allows users to block the disclosure of tracking information in such a system: “[the] location blocking service provides a network user with the ability to prevent the location of her wireless handheld device from being disclosed to parties other than the wireless network provider and PSAPs [Public Safety Answering Points].” *Id.* at 2:51–57. Zellner teaches that “[a]s such, the network user retains control of her privacy, deciding when and to whom location information will be forwarded.” *Id.* at 2:58–60.

As indicated above, Petitioner describes the problem that the inventors of the '684 patent were trying to solve for claims 3 and 4 as: how to give users control over their location data, including how to allow or prevent targeted advertisements from being directed to the mobile device. Reply 22. This description of the problem that the inventors were trying to solve is similar to the description provided above. Further, claim 1 recites “one advertisement selected by the Internet radio source using at least one of the reported locations,” which is targeted advertising, and the problem with a lack of control by users of the reporting of their locations is a privacy issue. Ex. 1001, 5:65–6:1. As mentioned, Zellner teaches that “the network user retains control of her privacy, deciding when and to whom location information will be forwarded.” *Id.* at 2:58–60. Zellner further specifically addresses privacy issues regarding “targeted advertisements.” *Id.* at 2:33–42. Thus, Zellner is reasonably pertinent to the problem that the inventors were trying to solve with Petitioner’s formulation of that problem.

As indicated above, Patent Owner argues that Zellner is not analogous art because “claims 3 and 4 relate to problem of enabling or disabling the flow of data from a mobile device directly to a third party,” whereas Zellner relates to controlling the type of data collection that a network provider may routinely perform. Sur-reply 20. Providing a mechanism to enable and disable location reporting, however, appears to be a *solution* to the problem described in the Specification (i.e., the need to protect a user’s privacy), rather than a problem in and of itself. Regardless, even if we were to accept Patent’s Owner description of the problem the inventors were trying to solve—enabling or disabling the flow of data from a mobile device directly to a third party—we would still find that Zellner is still reasonably pertinent

to that problem. Zellner discloses a method for enabling or disabling the flow of data from a mobile device to third parties (i.e., parties other than the wireless network provider and PSAPs). Ex. 1010, 2:51–57. And the problem addressed by the '684 patent was not whether third parties *directly or indirectly* obtained location information without a user's permission, but rather that the user's privacy would be breached by the third party's (direct or indirect) receipt of such information. Ex. 1001, 5:65–6:1. Under the circumstances, an ordinarily skilled artisan would view Zellner as reasonably pertinent to a problem with which the inventors of the '684 patent were concerned. Zellner is analogous art.

5. Motivation to Combine Rittmaster and Duvall with Zellner

Petitioner argues that an ordinarily skilled artisan would have been motivated to combine Rittmaster and Duvall with Zellner for the following reasons. Petitioner asserts that Rittmaster teaches or suggests allowing a user to determine whether to manually enter location information. Pet. 32. Petitioner further argues that Zellner provides known details on how to automate the user's manual decision in Rittmaster. *Id.* Further, Petitioner argues that an ordinarily skilled artisan would have been motivated to make this modification because Zellner discloses that many network users would object to being unable to control when their location information is used. *Id.* at 32–33. Petitioner further contends that Rittmaster also discloses base mobile devices that are ready for the improvement that the known technique of Zellner provides. *Id.* at 35. Petitioner further argues that combining Rittmaster, Duvall, and Zellner would have yielded predictable results and that an ordinarily skilled artisan would have had a reasonable expectation of

success in so doing. *Id.* Petitioner’s arguments are supported by the testimony of Mr. Wechselberger, which we credit. Ex. 1011 ¶¶ 58–62.

Patent Owner provides no counterarguments regarding (i) an ordinarily skilled artisan’s motivation to combine Zellner with Rittmaster and Duvall or (ii) the reasonable expectation of success in so doing.

After reviewing the record, we determine that Petitioner has proven that an ordinarily skilled artisan would have been motivated to combine Zellner with Rittmaster and Duvall and would have had a reasonable expectation of success in so doing.

6. Summary

In sum, we determine that Petitioner has proven that claims 3 and 4 would have been obvious over Rittmaster, Duvall, and Zellner.

D. Asserted Obviousness over Estese and Duvall

Petitioner asserts that claims 1, 2, and 5–9 would have been obvious over Estese and Duvall. Pet. 3.

1. Estese

Estese is directed to a system for providing customized advertisements to an end user. Ex. 1006 ¶ 1. Estese reports that: “[f]or media, such as the Internet, satellite and cable broadcasts . . . advertisements have not been easily tailored to fit the needs of any given region or locality which has reduced the effectiveness and attractiveness of these media to advertisers.” *Id.* ¶ 2. Estese further reports that a need exists for personalized and/or geographical based advertising for Internet, satellite, and cable broadcasts. *Id.* ¶ 3.

Figure 1 of Estese, reproduced below, illustrates a system for providing geographical based advertising (Ex. 1006 ¶¶ 12–14):

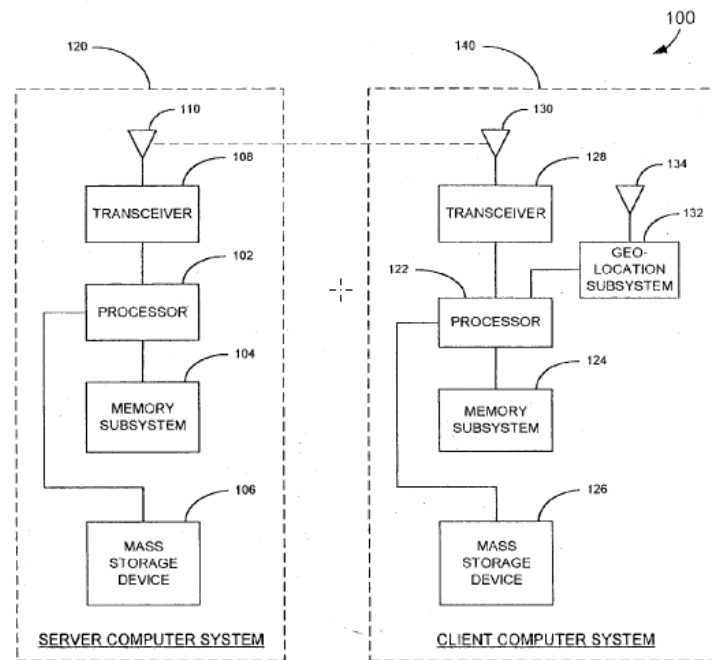


FIG. 1

Figure 1 above “is an electrical block diagram of an exemplary client computer system in communication with an exemplary server communication system, via a wireless connection.” *Id.* ¶ 7. Figure 1 shows system 100 with client computer system 140 and server computer system 120. *Id.* ¶ 14. Client computer system 140 includes geo-location subsystem 132 and may be located in a vehicle. *Id.* ¶¶ 13, 16.

Figure 2A of Estese, reproduced below, illustrates client-side advertisement selection routine 200 (Ex. 1006 ¶ 16):

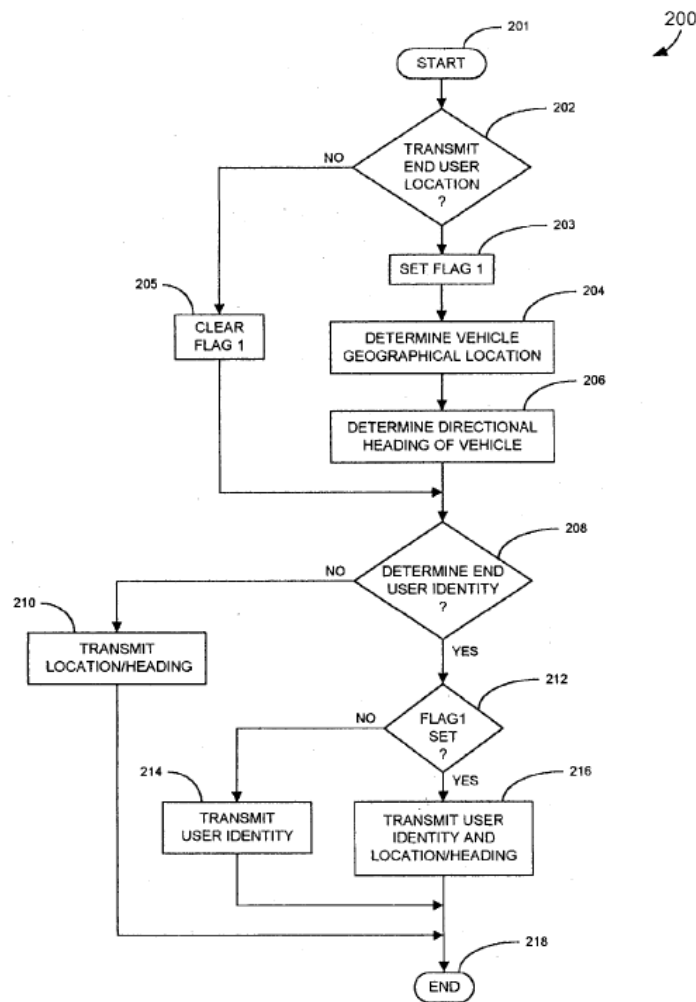


FIG. 2A

Figure 2A above “is an exemplary flow chart of a routine, which executes on a client computer system and provides an end user location and/or end user identity to a server computer system.” *Id.* ¶ 8. Routine 200 is executed on client computer system 140. *Id.* ¶ 16. In step 202 of routine 200, processor 122 determines whether the location of the user is to be used in the advertisement selection. *Id.* If the location is to be used, steps 203, 204, and 206 are performed. *Id.* Step 203 sets a flag. *Id.* Step 204 determines the vehicle location, and step 206 determines the directional heading of the vehicle from multiple readings provided by geo-location subsystem 132 or

an electronic compass. *Id.* This information is transmitted to server computer system 120. *Id.*, Fig. 2A, steps 210 and 216.

Figure 2B of Estese, reproduced below, illustrates server-side advertisement selection routine 250 (Ex. 1006 ¶ 18):

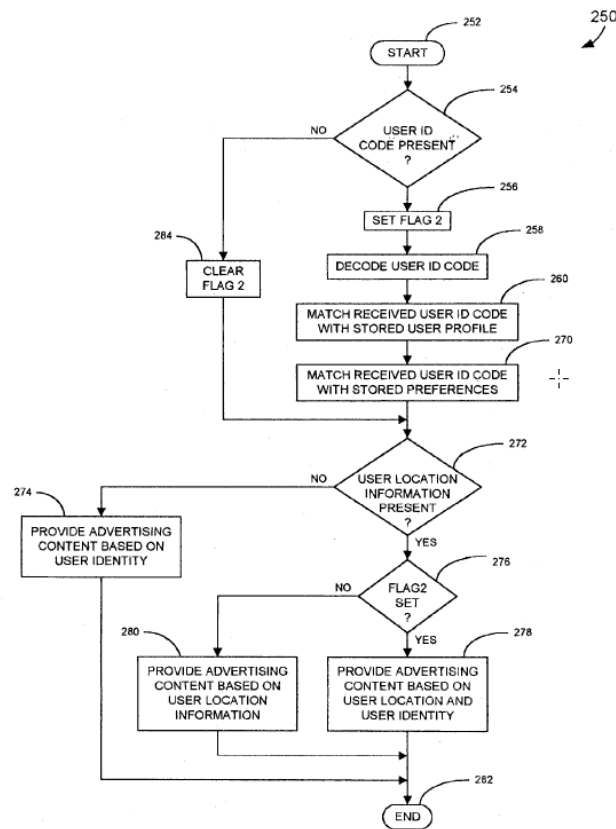


FIG. 2B

Figure 2B “is an exemplary flow chart of a routine, which may execute on a server computer system to provide advertising content based on an end user location and/or end user identity.” *Id.* ¶ 9. Step 272 of routine 250 determines whether user location information was transmitted by client computer system 140. *Id.* ¶ 18. If user location information was transmitted, then server computer system 120 provides advertising content based on the user location information to the client computer system 140. *Id.* ¶ 19, Fig. 2B, steps 278, 280. Server computer system 120 provides the

advertising content by either transmitting the advertising content directly to client computer system 140 or by sending a message to client computer system 140, which causes processor 122 to select the appropriate advertising content from mass storage device 126. *Id.* ¶ 19.

Figure 3A of Estese, reproduced below, shows the delivery of advertising content for a user (Ex. 1006 ¶ 21):

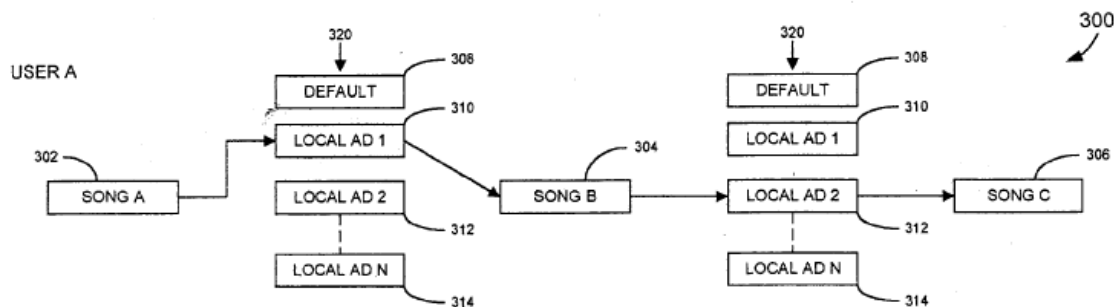


FIG. 3A

As shown in Figure 3A above, user A receives the following media stream: song A (302), then local ad 1, then song B, then local ad 2, then song C. *Id.* The advertisements come from advertising pool 320. *Id.* Different advertisements from advertising pool 320 can be given to different users based on the user's locations and preferences. *Id.*

2. Claim 1

a. Limitation 1.2

The parties dispute whether the asserted prior art teaches or suggests limitation 1.2: “receiving by the Internet radio source from the mobile device recurring location reports reporting new locations of the mobile device resolved by the mobile device.”

b. Parties' Arguments

Petitioner argues that Estese discloses or renders obvious limitation 1.2. Petitioner maps the recited Internet radio source to server computer

system 120 in Estese. Pet. 36. Petitioner further maps the recited mobile device to Estese’s client computer system 140 (when that system is in a mobile environment, such as an automobile). *Id.* at 37.

Petitioner argues that Estese discloses that “[t]he location of an end user can be determined by various positioning systems, such as a global positioning system (GPS) . . . which a[re] broadly referred to herein as a geo-location subsystem.” Pet. 37 (quoting Ex. 1006 ¶ 12). Petitioner further asserts that the mobile device (client computer system 140) includes geo-location subsystem 132 that detects the location of the device to resolve, by the mobile device, the location of the device. *Id.* (citing Ex. 1006 ¶¶ 14, 16). Further, Petitioner argues that Estese explicitly discloses the provision of multiple, recurring location reports and an ordinarily skilled artisan would have understood that those recurring reports would have been provided to server computer system 120 in server-side implementations so the directional heading of a vehicle occupied by the end user may be determined. *Id.* at 38 (citing Ex. 1006 ¶ 16, Ex. 1011 ¶¶ 74–75).

Patent Owner argues that Petitioner mistakenly equates the multiple directional readings received by Estese’s client computer system with the recited recurring location reports. PO Resp. 49. Patent Owner asserts that Estese never uses the word “recurring,” and it uses the word “multiple” only once. *Id.* Patent Owner further argues that Estese refers to multiple readings, not multiple reports. *Id.* Further, Patent Owner argues that the multiple location readings from geolocation subsystem 132 are received within the client, not the server. *Id.* at 50.

Patent Owner further asserts that Petitioner has not sufficiently accounted for the requirement that the recited mobile device report *new*

locations of the mobile device resolved by the mobile device. PO Resp. 48. Patent Owner argues that Petitioner has presented no analysis of how Estese discloses the reporting of new locations. *Id.* at 49. Patent Owner further argues that Petitioner's assertion that an ordinarily skilled artisan would have understood that recurring reports would have been provided is only supported by a conclusory statement by Petitioner's expert. *Id.* at 51. Patent Owner further asserts that in both the client-side and server-side implementations, it is the client side that determines the directional heading based on multiple readings. *Id.* at 52.

In the Reply, Petitioner argues that claim 1 does not require that the server determine a trajectory. Reply 13. Petitioner asserts that its expert, Mr. Wechselberger, cited numerous locations in Estese to support his conclusion that an ordinarily skilled artisan would understand that Estese discloses server-side trajectory determination in its server-side implementation. *Id.* at 14. Petitioner further argues that an examiner arrived at the same conclusion. *Id.* Petitioner also asserts that in Estese determining the trajectory at the client side is an optional step. *Id.* at 14–15.

In the Sur-reply, Patent Owner argues that an ordinarily skilled artisan would not understand Estese's server-side implementation to be configured to determine trajectory. Sur-reply 15. Patent Owner asserts that Petitioner raised for the first time in its Reply the argument that Estese's client-side embodiment discloses receiving recurring location reports. *Id.* at 17.

c. Analysis of Limitation 1.2

We find that Petitioner has not proven that Estese discloses or renders obvious 1.2. As indicated above, Petitioner argues that trajectory determination by the server-side implementation of Estese and the basic

operation of the server-side implementation of Estese disclose or render obvious limitation 1.2. Pet. 38 (“recurring reports (e.g., periodically transmitted reports) would have been provided to the server computer 120 *in server-side* implementations so that, for example, ‘the *directional heading* of a vehicle occupied by the end user’ may be determined” (emphasis added)); Reply 18 (“the *server-side* implementation to operate—using location reports to *calculate trajectory*” (emphasis added)); *id.* (“the *basic operation* of the *server-side* implementation [would] meet the claim language” (emphasis added)). We are not persuaded by either argument.

i. Server-Side Trajectory Determination

Regarding the alleged trajectory determination of the server-side implementation of Estese, Estese does not disclose that its server computer system 120 would calculate trajectories of vehicles. Estese’s only disclosure of determining the trajectory of a vehicle cited by the parties is that routine 200 on client computer system 140 determines the trajectory of a vehicle: “routine 200 is executed on the client computer system 140 . . . [and in] step 206, . . . the directional heading of a vehicle, occupied by the end user, is determined, e.g., from multiple readings provided by the geo-location subsystem 132 or an electronic compass.” Ex. 1006 ¶ 16; *see also id.*, Fig. 2A, step 206. Estese does *not* disclose that the software routine running on its server computer system 120 determines trajectories. *Id.* ¶¶ 18, 19, Fig. 2B.

Petitioner, however, argues that the server-side routine disclosed in Estese is exemplary and nothing in Estese precludes its server from calculating trajectories with a server-side implementation. Reply 14–15. Petitioner further argues that Estese’s claims contemplate that either the

client or the server could determine the directional heading of the user. *Id.* at 16. Further, Mr. Wechselberger testifies that an ordinarily skilled artisan “would have understood that exemplary methods for selecting advertising based on the multiple readings that provide directional heading information [would] apply to both the client-side and the server-side implementations based at least on claims 1 and 2 and paragraph [0026] of Estese.” Ex. 1011 ¶ 75. We, however, do not find that claims 1 and 2 and paragraph 26 of Estese support this testimony by Mr. Wechselberger. Claims 1 and 2 of Estese read as follows:

1. A method for providing customized content to an end user, comprising the steps of:

- determining an identity of an end user;
 - determining a location of an end user; and
 - providing content to the end user, wherein the content is based on the identity and location of the end user.

2. The method of claim 1, wherein the step of determining the location of the end user includes the steps of:

- determining a geographical location of the end user; and
 - determining a directional heading of the end user.

Although Petitioner correctly argues that claims 1 or 2 do not *require* that the *client computer system* “determin[e] a directional heading of the end user,” the fact that the claims are not limited to client-side determination does not mean that those claims teach or render obvious determining a directional heading with a server-side implementation. Further, having the server computer determine the directional heading of a user would not by itself satisfy limitation 1.2. To satisfy that limitation, the server computer would have to determine the directional heading by receiving recurring

location reports, not by another mechanism, and Petitioner has not shown that such recurring reports would have been obvious based on the disclosure of Estese.

Paragraph 26 of Estese reads, in pertinent part: “the embodiments shown in the drawings and described above are merely for illustrative purposes and not intended to limit the scope of the invention.” Ex. 1006 ¶ 26. The mere fact, however, that Estese’s disclosed embodiments are illustrative and could be modified to satisfy limitation 1.2 does not establish disclosure of the modification or a motivation to make that modification. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the . . . modifications of prior art to arrive at the claimed invention.”). Similarly, although Petitioner may be correct that nothing in Estese discloses that the server computer system could not calculate trajectories with proper programming, the mere fact that the server computer system *could* be implemented to determine trajectories does not mean that Estese teaches or renders obvious having the server computer determine those trajectories. *Id.*

Here, Petitioner provides an insufficient rationale for having the server computer system determine trajectories, and for that purpose, receive recurring location reports. Ex. 2002 ¶¶ 79–80. As discussed, Estese discloses that its client computer system determines the trajectory of a vehicle. Ex. 1006 ¶ 16. Petitioner does not persuasively explain why an ordinarily skilled artisan would want to transfer that function to a server computer with Estese. Further, Estese teaches the desirability of “reducing the amount of data flow” with server-side insertions. Ex. 1006 ¶ 24.

Petitioner’s proposed modification, having the client computer send repeated reports to the server computer so the server computer can calculate a trajectory, would increase, rather than reduce, that data flow, undermining one of Estese’s objectives. In addition, Estese discloses using an access point in the server-side implementation to determine the appropriate local advertisement, rather than actual geographical location or heading to reduce data flow: “[a] localized advertising pool can be maintained for fixed access points. In this manner, geographical location may be inferred, when a mobile node accesses data through a fixed access point. The access point serves an appropriate local advertisement, thus, reducing the amount of data flowing across the fixed network.” Ex. 1006 ¶ 24. Here, Petitioner’s proposed modification would increase data flow sending repeated locations to the server so the server can do trajectory calculations, rather than using the access points disclosed by Estese to determine which advertisements to select. Petitioner has not provided a persuasive reason for making such a modification.

As indicated, Petitioner also argues that Estese teaches the determination of the direction of a vehicle by the client computer system is optional. Although Estese teaches that the client computer system need not determine the direction of a vehicle (Ex. 1006 ¶ 16 (“step 206 may be omitted”)), Petitioner has not shown that any disclosure in Estese teaches or suggests having the server computer system determine the directional heading when the client computer system does not. Reply 14–15. In other words, based on the record before us, Estese teaches that one need not determine a heading—not that the server alternatively would determine it. Ex. 1006 ¶ 16.

As indicated above, Petitioner also argues that an examiner stated that Estese's Internet Radio source determines a trajectory of the mobile device based at least in part on the GPS coordinates. Reply 14 (citing Ex. 1003, 56). We are not persuaded by the cited statement. The statement was one of numerous statements the Examiner made in an office action rejecting numerous claims. Ex. 1003, 54–63. The statement reads:

With respect to claim 6, ESTESE ET AL. discloses the Internet radio source (Fig. 1), under control of the processor the Internet radio source determines a trajectory of the mobile device based at least in part on the GPS coordinates and selects content for outputting on the mobile device during the program break based at least in part on the trajectory (Paragraph [0020]).

Ex. 1003, 56. *Id.* at 54–63. The paragraph of Estese cited by the Examiner (paragraph 20) to support the above statement provides no support for the proposition that the Internet Radio Source (server computer system 140) determines the trajectory of the mobile device. In particular, paragraph 20 reads: “Accordingly, as described herein, it should be appreciated that a location and/or an identity of an end user can be utilized to provide appropriate advertising content to an end user.” Ex. 1006 ¶ 20. Further, Petitioner cites no disclosures from Estese to support the Examiner's statement. Reply 14. And, as set forth above, Petitioner has not persuasively shown that any cited paragraphs in Estese support a finding that the Internet Radio Source (server computer system 120) determines the trajectory of the mobile device. Pet. 37–38; Reply 13–18. Accordingly, we do not find the statement by the Examiner cited by Petitioner persuasively supports Petitioner's argument.

In sum, Petitioner has neither proven that Estese discloses performing trajectory determinations on its server computer nor provided a sufficient

rationale to support an argument that an ordinarily skilled artisan would be motivated to perform trajectory determinations on the server computer in server-side implementations. Thus, Petitioner has not supported its contention that Estese teaches or an ordinarily skilled artisan would modify Estese to send multiple location reports to support trajectory determinations by the server computer system. Ex. 2002 ¶¶ 79–80.

ii. Basic Operation of the Server-Side Implementation

We also are not persuaded by Petitioner’s argument that the basic operation of the server-side implementation of Estese satisfies limitation 1.2. Reply 16, 18. First, Petitioner did not properly raise this argument in the Petition. Pet. 37–38; *see* 37 C.F.R. § 42.23(b). The Petition makes no mention of the basic operation of the server-side implementation as disclosing or rendering obvious limitation 1.2. Pet. 37–38. Further, even if we were to allow Petitioner to raise this argument through Mr. Wechselberger’s accompanying declaration, that declaration provides insufficient analysis to support such an argument. Ex. 1011 ¶ 75. In pertinent part, the declaration states:

In describing one implementation that refers to client side insertion, Estese explicitly recites that the location information is “periodically” provided to the server so that the server can point the client to the storage location for the appropriate targeted advertisement. Ex. 1006, ¶[0023]. But [an ordinarily skilled artisan] would have understood the information needed for server-side insertion of advertising would also use periodically provided location information to “provide appropriate advertising content to an end user,” even when the end user is not stationary, e.g., when in a motor vehicle. Ex. 1006, ¶¶[0013], [0020].

Ex. 1011 ¶ 75.

Mr. Wechselberger, however, does not explain why Estese's server-side insertion would use periodically provided location information and the paragraphs of Estese cited by Mr. Wechselberger to support his proposition do not set forth such a reason. The cited paragraphs read as follows:

[0013] The algorithm for selecting an advertisement may be implemented as a set of filters, which determine a location of an end user, relative to services in an area and determine a profile and/or preferences of the end user. In the event that an end user does not have a preference or profile, a default message or advertisement may be provided in a given window. It should be appreciated that the customized content can be based solely on a profile and/or preferences of the end user or solely on a location of the end user. It should also be appreciated that a heading of a motor vehicle may also be utilized in conjunction with the location of the motor vehicle to determine what advertisement is provided to the end user. When a user profile/preference is implemented, such a profile/preference can be used in combination with the vehicle location to provide customized content to the end user.

[0020] Accordingly, as described herein, it should be appreciated that a location and/or an identity of an end user can be utilized to provide appropriate advertising content to an end user.

Ex. 1006 ¶¶ 13, 20.

Neither paragraphs 13 nor 20 expressly set forth why an ordinarily skilled artisan would want to periodically provide location information to the server computer, and Mr. Wechselberger has not set forth any persuasive reasons why we should read them to implicitly provide such a teaching or suggestion. Ex. 1011 ¶ 75. Further, Mr. Wechselberger's conclusory testimony that an ordinarily skilled artisan would have understood the information needed for server-side insertion of advertising also would use

periodically provided location information to “provide appropriate advertising content to an end user” is not persuasive. *TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) (“Conclusory expert testimony is inadequate to support an obviousness determination . . .”).

iii. Summary

We find that Petitioner has not established that Estese and Duvall teach or otherwise render obvious limitation 1.2. Thus, we determine Petitioner has not proven that claim 1 would have been obvious over Estese and Duvall.

d. Client-Side Implementation and Limitation 1.4

Given Petitioner’s repeated references to the server-side implementation of Estese for limitation 1.2, Petitioner does not appear to be relying on the client-side implementation of Estese as teaching or rendering obvious limitation 1.2. Pet. 38 (“*server*-side implementations” (emphasis added)); Reply 14 (“*server*-side implementation” (emphasis added)); *id.* at 16 (“Estese’s *server* . . . during its standard operations of providing users targeted advertising” (emphasis added)); *id.* at 17 (“*server*-side implementations” (emphasis added)). Nevertheless, Patent Owner’s Sur-Reply argues that Petitioner belatedly argues in its Reply that the client-side implementation of Estese teaches or suggests limitation 1.2. Sur-Reply 14. We do not read the Reply as making that argument. If it had, the argument would have been untimely. 37 C.F.R. § 42.23(b). Nevertheless, to avoid any possible confusion regarding whether that argument was made, we address it, and find that Petitioner’s possible reliance on the client-side implementation of Estese would not change our determination regarding the patentability of claim 1 under this ground because combining the client-side

implementation of Estese with Duvall would not satisfy limitations 1.2 and 1.4.

For limitation 1.2, Petitioner's Reply (at 14) cites paragraph 23 of Estese, which discloses sending periodic location information for a client-side implementation: "[w]ith *client side insertion*, the client periodically and, on change, provides the server with information, e.g., a location of an end user." Ex. 1006 ¶ 23 (emphasis added). This disclosure arguably describes sending repeated location reports and, thus, could teach limitation 1.2 in isolation. Claim limitations, however, do not exist in isolation, and the client-side implementation of Estese would not satisfy limitation 1.4: "streaming from the Internet radio source to the mobile device during the advertising break at least one advertisement selected by the Internet radio source." With client-side insertion, server computer system 120 (the Internet radio source) does not stream a selected advertisement. Ex. 1006 ¶ 23. Instead, client computer system 140 inserts the selected advertisement. *Id.* Thus, with client-side insertion, the Internet radio source (server computer system 120) would not stream to the mobile device during the advertising break at least one advertisement selected by the Internet radio source. Therefore, limitation 1.4 would not be satisfied. Petitioner has not set forth any reason an ordinarily skilled artisan would have modified Estese to satisfy limitation 1.4 with client-side insertion. Pet. 41–43. Petitioner relies solely on Estese's server-side implementation for that limitation. *Id.*

Thus, any possible reliance by the Petitioner on the client-side implementation in Estese would not alter our determination that Petitioner

has not proven that claim 1 would have been obvious over Estese and Duvall.

e. The Parties' Claim Construction Dispute Regarding the Term "New Location" Does Not Affect Our Analysis of Limitation 1.2

As discussed in Section I.E.2 above, the parties dispute whether the term "new location" encompasses a geographic location that is the same as the prior geographic location, but was newly resolved by the mobile device. Neither party, however, has argued or shown how the adoption of either party's proposed construction for the term would affect an analysis of limitation 1.2. PO Resp. 47–53; Reply 13–18; Sur-reply 14–17. We find that this claim construction dispute does not affect our analysis of this limitation because Petitioner has not proven that Estese teaches, or that an ordinarily skilled artisan would have modified Estese to have, the server computer system (the Internet Radio Source) receive repeated reports of either new geographic locations or geographic locations that were newly resolved. Further, nothing in our analysis in Section II.D.2.c depends on the term "new location" encompassing only new geographic locations. For instance, Petitioner has not proven that Estese teaches, or that an ordinarily skilled artisan would modify Estese to have, the server computer system receive repeated reports of new geographic locations or newly resolved geographic locations to determine trajectories. *See* Section II.D.2.c.i. Similarly, Petitioner has not proven that Estese teaches, or that an ordinarily skilled artisan would modify Estese to have, the server computer system receive repeated reports of new geographic locations or newly resolved geographic locations as part of the basic operation of server-side implementations. *See* Section II.D.2.c.ii. Thus, the parties' dispute

regarding construction of the term “new location” does not affect our analysis of limitation 1.2.

f. Summary

We determine that Petitioner has not proven that claim 1 would have been obvious over Estese and Duvall.

4. Claims 2 and 5

Claims 2 and 5 each depend from independent claim 1. For the limitations that claims 2 and 5 incorporate from claim 1, Petitioner relies on its showing for claim 1. Pet. 45, 48. Thus, we determine that Petitioner has not proven that claims 2 and 5 would have been obvious over Estese and Duvall.

5. Claims 6–9

In light of our determination that claims 6–9 would have been obvious over Rittmaster and Duvall, we do not need to determine whether Petitioner has proven that the same claims would have been obvious over Estese and Duvall.

E. Asserted Obviousness over Estese and Hoshino

Petitioner asserts that claims 1, 2, and 5–9 would have been obvious over Estese and Hoshino. Pet. 59.

1. Hoshino

Hoshino is directed to an advertisement inserting apparatus for inserting commercials into time series data, such as moving pictures.

Ex. 1009 ¶ 1. Figure 1 of Hoshino is reproduced below:

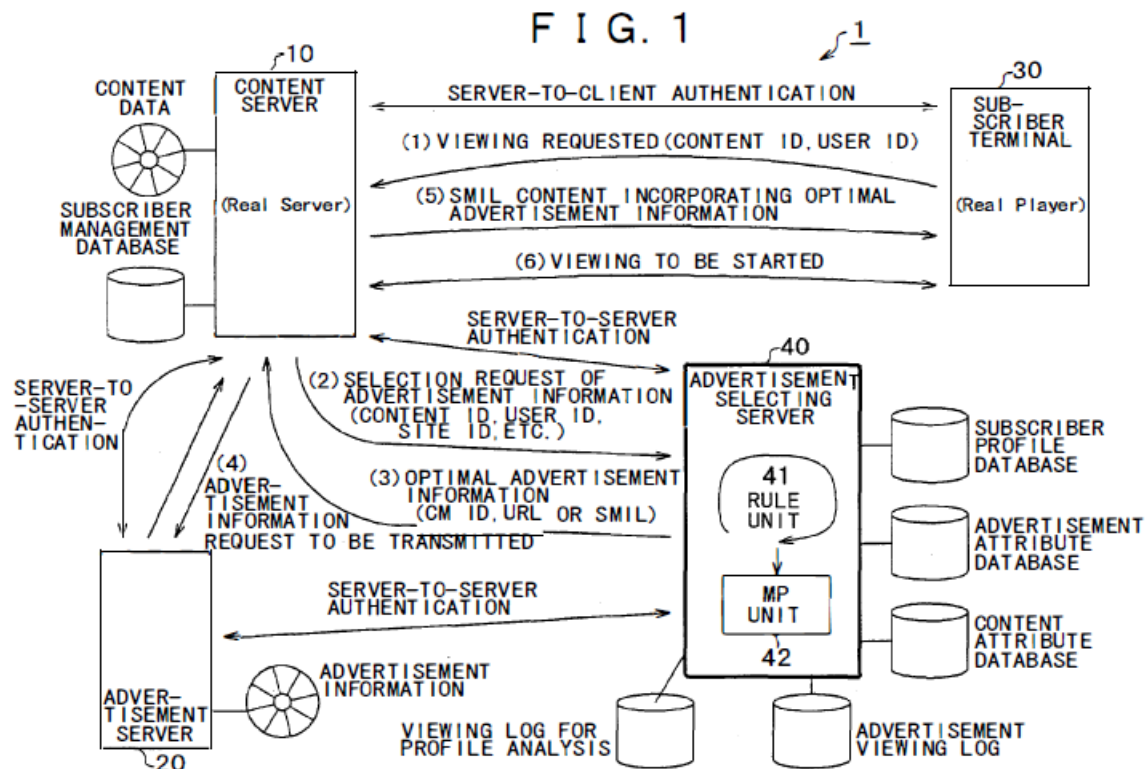


Figure 1 above shows content/advertisement providing system 1. Ex. 1009 ¶ 39. System 1 includes content server 10, advertisement server 20, subscriber terminal 30, and advertisement selecting server 40. *Id.* ¶ 66. A subscriber can operate subscriber terminal 30 to designate moving pictures to be provided by content server 10. *Id.* ¶ 70. Content server 10 can request advertisements from advertisement server 20 that are selected by advertisement selecting server 40 to be displayed on subscriber terminal 30. *Id.* ¶ 71.

Hoshino discloses selecting advertising content that fits the duration of the break, using, for example, a constraint expression including “slotTime” as a selection condition. Ex. 1009 ¶¶ 199–209. slotTime is defined as the length (time period) of each slot. *Id.* ¶ 204. Figures 12 and 13 of Hoshino are reproduced below:

FIG. 12

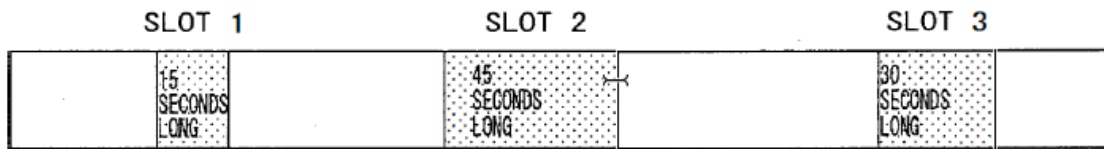


FIG. 13



Figure 12 above, showing slots 1–3, illustrates typical slot locations with distributed content. Ex. 1009 ¶ 50. Figure 13 above illustrates how candidate advertisements (CM2, CM19, CM37, and CM58) are optimally inserted into slots 1–3 based on slot durations. *Id.* ¶ 51. As shown in these figures, a fifteen second advertisement (CM58) is assigned to a fifteen-second slot (slot 1). *Id.* Both a fifteen-second advertisement (CM2) and a thirty-second advertisement (CM19) are assigned to a forty-five-second slot (slot 2). *Id.* Finally, a thirty-second advertisement (CM37) is assigned to a thirty-second slot (slot 3). *Id.*

2. Claims 1, 2, and 5

For this ground, Petitioner's showing for claims 1, 2, and 5 mirrors its showing for the asserted obviousness of these claims over Estese and Duvall, with one exception. Pet. 59. For limitation 1.4, Petitioner argues that an ordinarily skilled artisan would have looked to Hoshino (rather than Duvall) for implementation details on the selection of targeted

advertisements. *Id.* at 59–61. For limitation 1.2, Petitioner relies on its showing for Estese and Duvall, and, for limitation 1.4, Petitioner does not rely on the client-side implementation of Estese. *Id.* at 60–61. Thus, for the reasons expressed above regarding Petitioner’s showing for claims 1, 2, and 5 as obvious over Estese and Duvall, we determine that Petitioner has not shown that claims 1, 2 and 5 would have been obvious over Estese and Hoshino.

4. Claims 6–9

In light of our determination that claims 6–9 would have been obvious over Rittmaster and Duvall, we do not need to determine whether Petitioner has proven that the same claims would have been obvious over Estese and Hoshino.

F. Asserted Obviousness over Rittmaster, Duvall, and Hoshino

Petitioner argues that claims 1 and 5–9 would have been obvious over Rittmaster, Duvall, and Hoshino. In light of our determination that these same claims would have been obvious over Rittmaster and Duvall, we do not need to determine whether Petitioner has proven that these claims would have been obvious over Rittmaster, Duvall, and Hoshino.

G. Asserted Obviousness over Estese, Duvall, and Zellner, over Estese, Hoshino, and Zellner, and over Rittmaster, Duvall, Hoshino, and Zellner

Petitioner argues that claims 3 and 4 would have been obvious over Estese, Duvall, and Zellner, over Estese, Hoshino, and Zellner, and over Rittmaster, Duvall, Hoshino, and Zellner. Pet. 3. We do not need to determine whether claims 3 and 4 would have been obvious over these grounds in light of our determination that claims 3 and 4 would have been obvious over Rittmaster, Duvall, and Zellner.

III. MOTION TO EXCLUDE

Petitioner moved to exclude Exhibit 2004 under various provisions of the Federal Rules of Evidence. Paper 26, 1. We do not need to decide this motion, however, because Patent Owner relies on Exhibit 2004 solely for the asserted grounds based on Rittmaster, Duvall, and Hoshino, and Rittmaster, Duvall, Hoshino, and Zellner.¹² PO Resp. 41–43. As set forth above, we did not need to substantively address those grounds in this Decision. Thus, we dismiss Petitioner’s motion to exclude as moot.

IV. CONCLUSION

As set forth in the following table, Petitioner has proven that claims 1 and 5–9 are unpatentable, but has not proven that claim 2 is unpatentable:¹³

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 5–9	103	Rittmaster, Duvall	1, 5–9	
1, 2, 5–9	103	Estese, Duvall ¹⁴		1, 2, 5

¹² Above, we substantively addressed the ground of asserted obviousness over Rittmaster and Duvall, but did not substantively address the grounds of asserted obviousness over Rittmaster, Duvall, and Hoshino and over Rittmaster, Duvall, Hoshino, and Zellner.

¹³ Patent Owner argues that “[t]he Board lacks the authority to issue a Final Written Decision in this proceeding because the Administrative Patent Judges (‘APJs’) are principal officers of the United States that must be appointed by the President and confirmed by the Senate.” PO Resp. 56–58. This issue was decided by the Supreme Court in *United States v. Arthrex, Inc.*, 141 S.Ct. 1970 (2021).

¹⁴ As indicated above, in light of our determinations set forth in this table, we did not need to determine whether, for each asserted ground, Petitioner has proven that the asserted ground renders every claim challenged by that ground unpatentable.

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 5–9	103	Estese, Hoshino		1, 2, 5
1, 5–9	103	Rittmaster, Duvall, Hoshino		
3, 4	103	Estese, Duvall, Zellner		
3, 4	103	Rittmaster, Duvall, Zellner	3, 4	
3, 4	103	Estese, Hoshino, Zellner		
3, 4	103	Rittmaster, Duvall, Hoshino, Zellner		
Overall Outcome:			1, 3–9	2

V. ORDER

It is:

ORDERED that claims 1 and 3–9 have been shown, by a preponderance of the evidence, to be unpatentable;¹⁵

¹⁵ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of

ORDERED that claim 2 has not been shown, by a preponderance of the evidence, to be unpatentable;

FURTHER ORDERED that Petitioner's motion to exclude (Paper 26) is *dismissed*; 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.

FOR PETITIONER:

Jessica Marks
Jung Hahm
UNIFIED PATENTS
jessica@unifiedpatents.com
jung@unifiedpatents.com

FOR PATENT OWNER:

Barry Bumgardner
Marcus Brakefield
NELSON BUMGARDNER ALBRITTON P.C.
barry@nelbum.com
hill@nbafirm.com

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).