

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISH NETWORK CORPORATION and
DISH NETWORK L.L.C.,
Petitioner,

v.

CUSTOMEDIA TECHNOLOGIES, L.L.C.,
Patent Owner.

Case IPR2017-00724
Patent 9,053,494 B2

Before MEREDITH C. PETRAVICK, MICHAEL W. KIM, and
KALYAN K. DESHPANDE, *Administrative Patent Judges*.

KIM, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

DISH Network Corporation and DISH Network L.L.C. (collectively, “Petitioner”) filed a Petition requesting *inter partes* review of claims 19, 26, 32–36, 39, 41, and 43 of U.S. Patent No. 9,053,494 B2 (Ex. 1003, “the ’494 patent”). Paper 1 (“Pet.”). Customedia Technologies, L.L.C. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

On July 28, 2017, we instituted an *inter partes* review of claims 26 and 32 on certain grounds of unpatentability set forth in the Petition. Paper 10 (“Dec.”). After institution of trial, Patent Owner filed a Patent Owner Response. Paper 23 (“PO Resp.”).¹ Petitioner filed a Reply (Paper 37, “Pet. Reply”). Petitioner relies on Declarations of Dr. Kevin Negus (Exs. 1008, 1029). Patent Owner relies on Declarations of Dr. Jay Kesan (Exs. 2001, 2003).

An oral hearing was held on March 5, 2018. Paper 42 (“Tr.”). After oral hearing, the Supreme Court issued its decision on April 24, 2018, in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018). In response, the Board issued an Order amending the Decision to Institute Trial instituting trial on the claims and grounds originally denied in the Decision on Institution. Paper 43. Aside from Patent Owner “incorporat[ing] by reference the arguments in its Preliminary Response (Paper 7) and the Board’s reasons in the Institution Decision (Paper 10) for denying institution of those grounds”

¹ In a parallel related proceeding concerning the same patent, Patent Owner indicated that a disclaimer was filed for claims 39 and 43. IPR2017-00717, Ex. 2006. We have made the disclaimer a part of this record; it is designated as Exhibit 3003.

(Paper 45), the parties waived additional briefing with respect to the newly instituted claims and grounds. Paper 44.

The Board has jurisdiction under 35 U.S.C. § 6. In this Final Written Decision, issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73, we determine that Petitioner has met its burden of showing, by a preponderance of the evidence, that claims 19 and 26 of the '494 patent are unpatentable. We determine also that Petitioner has not met its burden of showing, by a preponderance of the evidence, that claims 32–36 and 41 of the '494 patent are unpatentable.

B. Related Proceedings

Patent Owner has asserted the '494 patent against Petitioner in an ongoing action before the U.S. District Court for the Eastern District of Texas (“District Court”), Case No. 2:16-cv-00129 (“District Court Case”). Pet. 1; Paper 4, 2. In addition, before the Office, the '494 patent is the subject of IPR2017-00717 and CBM2017-00032, which were also filed by Petitioner. Paper 4, 2; Pet. 1–2. We issue final written decisions in those proceeding simultaneously with this decision.

C. The '494 Patent

The '494 patent discloses a digital data management system, one object of which is to “[r]ent/lease storage space in [a] user[']s Data Box to personalize and target advertising to the individual preferences of the user.” Ex. 1003, 3:30–4:12. The disclosed system has a local host Data Management System and Audio/Video Processor Recorder-player (“VPR/DMS”) unit, which allows for program reception, recording, processing, download, and playback, as well as a remote Account-

Transaction Server (“ATS”), which stores and provides programming information for use with the VPR/DMS unit. Ex. 1003, 4:13–19, 21:42–44.

The ’494 patent discusses advertising operations of the system in which broadcaster content provider 41 transmits advertising data to VPR/DMS 30, and the advertising data is recorded on built-in, non-movable storage device 14. Ex. 1003, 30:50–31:15. Figure 16 is reproduced below.

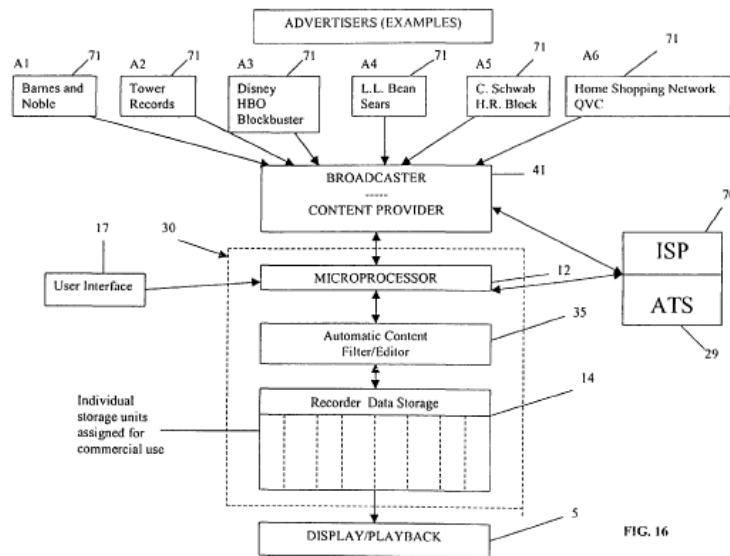


Figure 16 “illustrates the communication pathways between advertisers 71, a broadcaster content provider 41, and . . . VPR/DMS 30.” Ex. 1003, 30:60–63.

The ’494 patent explains that programmable “[a]dvertising ‘sections’ or ‘spaces’ or ‘data boxes’” within VPR/DMS 30 “may be reserved, rented, leased or purchased from [an] end user, content providers, broadcasters, cable/satellite distributor, or other data communications companies administering the data products and services.” Ex. 1003, 31:44–64. For example, a cable distributor may provide a customer with a set-top box containing VPR/DMS 30 with built-in non-movable storage device 14, which has “certain areas that are reserved and controlled by the cable

company” and that can be sold or leased to advertisers. Ex. 1003, 31:64–32:6.

Advertisements that are customer specific, based on customer selection or activity history monitoring, can be delivered to the advertising sections of VPR/DMS 30 and selectively recorded onto the “designated advertising ‘sections.’” Ex. 1003, 31:49–60, 32:7–15. According to the ’494 patent, this provides benefits for both the advertiser and customer, including “maximizing content, establishing customer qualifications, and ultimately producing more cost efficient advertising.” Ex. 1003, 32:17–21.

D. Illustrative Claim

Of challenged claims 19, 26, 32–36, and 41, claims 19 and 33 are the only independent claims. Independent claim 19, reproduced below, is illustrative:

19. A device for providing targeted advertising to an end user, comprising:

- at least one input port for receiving digital multimedia data, wherein the digital multimedia data comprises particular advertising data for targeting to at least one end user based upon predefined criteria data associated with the at least one end user;

- at least one storage device;

- at least one addressable and reserved storage space for storing the particular advertising data;

- at least one processor configured to reserve said at least one addressable storage space and to present the particular advertising data to the at least one end user.

*E. Prior Art References Applied by Petitioner and
Instituted Grounds of Unpatentability*

A trial was instituted for claims 19, 26, 32–36, and 41² of the '494 patent based on the following grounds and items of prior art:

Reference(s)	Basis	Challenged Claim(s)
Hite ³	§ 102	19, 26, 32–36, and 41
Hite and Hill ⁴	§ 103(a)	19, 26, 32–36, and 41
Hite and Baji ⁵	§ 103(a)	26 and 32
Hite, Hill, and Baji	§ 103(a)	26 and 32
Hite and Barton ⁶	§ 103(a)	41
Hite, Hill, and Barton	§ 103(a)	41

Dec. 39; Pet. 16–68; Paper 43, 2.

II. ANALYSIS

A. *Claim Construction*

Petitioner and Patent Owner dispute the construction of certain claim terms. Pet. 13–18; PO Resp. 5–8. We apply the constructions of those terms set forth in Paper 46 (“Order”).

² As dependent claims 39 and 43 were disclaimed (Ex. 3003) by the time of our Order (Paper 44), no trial was instituted on those claims. 37 C.F.R. § 42.107(e) (“No *inter partes* review will be instituted based on disclaimed claims.”).

³ U.S. Patent No. 5,774,170, filed Dec. 13, 1994 and issued June 30, 1998 (Ex. 1009, “Hite”).

⁴ U.S. Patent No. 4,607,346, issued Aug. 19, 1986 (Ex. 1010, “Hill”).

⁵ U.S. Patent No. 5,027,400, issued June 25, 1991 (Ex. 1025, “Baji”).

⁶ U.S. Patent No. 6,233,389 B1, filed July 30, 1998 and issued May 15, 2001 (Ex. 1026, “Barton”).

B. The Parties' Post-Institution Arguments

In our Decision on Institution, we concluded that the arguments and evidence advanced by Petitioner demonstrated a reasonable likelihood that claim 32 was obvious over Hite and Hill, claim 26 was obvious over Hite and Baji, and claims 26 and 32 were obvious over Hite, Hill, and Baji.

Dec. 39. We subsequently modified our Decision to institute a trial on all of the challenged claims and all of the grounds presented in the Petition. Paper 43, 2.

We must now determine whether Petitioner has established by a preponderance of the evidence that claims 19, 26, 32–36, and 41 are unpatentable over the cited prior art. 35 U.S.C. § 316(e). We previously instructed Patent Owner that “any arguments for patentability not raised in the [Patent Owner Response] will be deemed waived.” Paper 11, 6; *see also* 37 C.F.R. § 42.23(a) (“Any material fact not specifically denied may be considered admitted.”). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). With regard to the newly instituted grounds, however, we authorized (in Paper 44) Patent Owner to file a paper to incorporate by reference arguments in its Preliminary Response, and Patent Owner filed such a paper (Paper 45). Accordingly, we will also consider the arguments set forth in Patent Owner’s Preliminary Response.

There are arguments and evidence advanced by Petitioner to support its positions, though, that Patent Owner chose not to address in either its Preliminary Response (Paper 7) or Response (Paper 23), or that was not

addressed in the Decision on Institution (Paper 10). We have evaluated those unrebutted arguments and the evidence in support, and we find the Petitioner persuasively established, with sufficient evidence, the manner in which the asserted prior art teaches corresponding elements of the claims. *See* Pet. 16–68 (citing Exs. 1008–1010, 1025, 1026) (unchallenged portions only). Based on the preponderance of the evidence before us, we conclude that the prior art identified by Petitioner describes all limitations of the reviewed claims that were not contested by the Patent Owner in either its Preliminary Response (Paper 7) or Response (Paper 23). *In re NuVasive*, 841 F.3d 966, 974 (2016). We address only the contested limitations below.

C. Claims 19, 26, 32–36, and 41 as Anticipated by Hite

Petitioner asserts that claims 19, 26, 32–36, and 41 are anticipated by Hite. Pet. 16–56 (citing Ex. 1008, 1009). Patent Owner responds. Prelim. Resp. 21–29 (citing Ex. 1008, 1009, 2001); PO Resp. 17–43 (citing Ex. 1002, 1003, 1008–1010, 2003, 2004). Petitioner replies. Pet Reply. 4–16. (citing Ex. 1002, 1003, 1008–1010, 1028, 1029, 2003, 2004).

1. Principles of Law

Anticipation under 35 U.S.C. § 102 requires that “each claim element,” and “the claimed arrangement or combination of those elements,” “be disclosed, either expressly or inherently, in a single prior art reference.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332–33 (Fed. Cir. 2010) (citation omitted). Inherent disclosure is only established where the reference “must necessarily include the unstated limitation.” *Id.* (citation and emphasis omitted).

2. *Hite (Ex. 1009)*

Hite discloses a system that delivers and displays television and radio commercials targeted to individual viewers. Ex. 1009, [57], 1:7–10, 5:28–37. The disclosed system is intended to provide “viewers with advertisements which are matched to [their] interests and needs” and “advertisers with less waste and greater cost effectiveness.” Ex. 1009, 3:20–35.

In Hite’s system, “[e]ach commercial is analyzed as to its nature and focus” and a Commercial Identifier (“CID”) code “is appended.” Ex. 1009, 3:40–45. Commercials that can be preempted are imbedded with a CID code indicating “under what circumstances a more suitable commercial may be substituted.” Ex. 1009, 3:45–64. Additional codes, such as a context code and viewer reaction codes, can be “appended to the CID code to provide additional capabilities.” Ex. 1009, 4:19–5:16. Likewise, a set of CID codes is assigned to a viewer, based on the viewer’s needs and wants. Ex. 1009, 1:7–10, 3:65–4:2, 8:18–22. The display site can store and process CID codes for multiple viewers so that when the viewer is identified, commercials appropriate to that viewer are presented. Ex. 1009, 8:39–44.

Hite discloses that its system includes Ad Administration Facility (“AAF”) 100, which analyzes customers, commercials, and programs to construct CID codes. Ex. 1009, 8:64–9:1. The commercials and CID codes are conveyed to Ad Transmission Facility (“ATF”) 200, which combines them with audio/video programming and conveys the combined programming to Media Origination Facility (“MOF”) 300. Ex. 1009, 9:16–20, Fig. 1. Next, the package of programming, commercials, and CID codes is conveyed to display site 400. Ex. 1009, 9:32–37, 13:58–66, Fig. 1.

Display site 400 includes commercial processor 438 and optional video storage device 456, from which “[c]ommercial [p]rocessor 438 can cause commercial signals to be stored or played back.” Ex. 1009, 14:12–13, 14:28–32, 14:42–46, Fig. 5.

According to Hite, “[t]he storage devices used” in its system “can be of any form which is economical at the time of construction.” Ex. 1009, 10:44–46, 12:6–8. Examples “include magnetic, optical, and semiconductor implemented in tapes, disks, and chips.” Ex. 1009, 10:46–49, 12:8–11.

In one embodiment of Hite’s system, “an individually addressable digital recording device (RD) with a unique address is installed at the display site in the television receiver, VCR, display device set-top[]box or modular decoder associated with the video provider.” Ex. 1009, 6:60–66. “CID codes chosen for a particular display site (consumer) are transmitted to and stored in” the RD at the display site. Ex. 1009, 6:66–7:1; *see also* Ex. 1009, 4:1–2, 5:40–48, 6:60–66, 7:34–37 (concerning the same). Subsequently, commercials, each attached with “codes indicating the conditions and rules” required for its display, are “transmitted to the display site prior to the time of their intended use.” Ex. 1009, 7:1–11, 7:36–38. The CID codes and display rules are stored in an Ad Queue in the commercial processor. Ex. 1009, 7:12–14.

Commercial processor 438 at the display site, which “is programmed to find and analyze the CID codes in each commercial,” compares the codes attached to the commercials with the previously stored CID codes for the consumer. Ex. 1009, 4:3–15, 7:7–10, 7:24, 7:38–42. The commercials with CID codes that match the stored CID codes are “selected” and “stored in the storage at the display site.” Ex. 1009, 7:11–12, 7:38–42. Then, during a

break in a broadcast program, commercial processor 438 looks for CID codes in incoming commercials. Ex. 1009, 7:24–26. If there is a CID code, the processor applies the display rules for the stored commercials and substitutes the default, incoming commercials with stored commercials. Ex. 1009, 7:24–51.

3. *Independent Claim 19*

Petitioner contends that Hite discloses all of the limitations of independent claim 19. Pet. 16–23; Pet. Reply 4–16. Specifically, Petitioner argues that Hite’s Optional Video Storage (OVS) Device 456 corresponds to the recited “at least one storage device” having “at least one addressable and reserved storage space for storing . . . advertising data.” Pet. 20–23 (citing Ex. 1008 ¶¶ 589, 411, 415, 417). As Hite’s OVS Device 456 stores only commercials and their associated CID codes, Petitioner contends OVS Device 456 meets the aforementioned claim limitation, in that it is set apart just for storing advertising data. Pet. 22–23. Petitioner further contends that Hite discloses “at least one processor configured to reserve said at least one addressable storage space,” because commercial processor 438 at the display site executes a program “to selectively store targeted commercials” in OVS Device 456. Pet. 23 (citing Ex. 1008 ¶¶ 603, 608). Petitioner argues Hite’s advertising data is “target[ed] to at least one end user based upon predefined criteria data,” because the CID codes used to target commercials to a user are based on customer demographics. Pet. 16–23 (citing Ex. 1008 ¶¶ 603, 608).

a. *“addressable and reserved storage space for storing the particular advertising data”*

Patent Owner asserts the claimed “reserved storage space” must be exclusively for, or “just for,” the particular advertising data. PO Resp. 17.

Patent Owner contends Hite must “explicitly call out the possibility of exclusion; mere silence does not render the claim invalid.” PO Resp. 22 (citing *Biovall Labs., Inc. v. Anchen Pharms. Inc.*, 2006 WL 8071250 (C.D. Cal. Aug. 1, 2006)). Patent Owner argues the “absence of an affirmative statement in Hite precluding storage of programming in the Optional Video Storage Device suggests that the system in Hite could include receiving and storing programming in addition to commercials,” and, thus, Hite does not disclose an addressable and reserved storage space that is “set apart just for storing the particular advertising data,” as construed. PO Resp. 17–19.

Patent Owner’s expert, Dr. Kesan, asserts that it is “logical that the programming content would be stored with the matched commercials in the same storage area.” PO Resp. 18 (citing Ex. 2003, App’x C ¶ 161). Patent Owner argues that Petitioner’s expert, Dr. Negus, agrees that OVS Device 456 is capable of storing information other than commercials, and testifies further that other data, such as CID codes, display rules, and frequency indicator codes, which Patent Owner contends cannot be considered advertising data, could also be stored on OVS Device 456. PO Resp. 19–20 (citing Ex. 2003, App’x C ¶¶ 157, 160; Ex. 2004, 24:1–21, 25:7–24, 27:12–14, 29:7–12, 14–17, 19–25). Patent Owner’s contentions are, at least partly, premised on the notion that none of CID codes, display rules, and frequency indicator codes are “multimedia.” PO Resp. 19–20 (citing Ex. 2003, App’x C ¶ 160).

Petitioner replies that Hite never expressly states that video programming, separate from commercials, is stored anywhere other than the physical means 307 of Optional Playback Device 464. Pet. Reply 5–6 (citing Ex. 1029 ¶ 6). Petitioner further contends that Patent Owner’s

expert, Dr. Kesan, agrees that control data associated with the commercials is part of the advertising data. Pet. Reply 7 (citing Ex. 1028, 107:9–17).

We agree with Petitioner. Patent Owner’s argument that OVS Device 456 is the only logical place to store programming is not supported by the evidence, as Hite explicitly discloses physical means 307 and Optional Playback Device 464, which are clearly not OVS Device 456, as storing video programming. Ex. 1009, 9:32–37, 13:62–63. Indeed, we have reviewed the cited portions of Dr. Kesan’s testimony (Ex. 2003, App’x C ¶¶ 157, 160, 161), and that testimony is mostly directed to other assertions, with the exception of paragraph 161. The assertion in paragraph 161 that it is “logical that the programming content would be stored with the matched commercials in the same storage area,” however, is unsupported by any citations to Hite. By contrast, Petitioner asserts, and we agree, that Hite does not disclose OVS Device 456 as storing anything other than commercials. Pet. Reply 6–7 (citing Ex. 1009, 14:28–32, 14:40–46; Ex. 2004, 29:23–25).

With respect to Patent Owner’s argument concerning CID codes, display rules, and frequency indicator codes, we agree with Petitioner in several respects. First, we are persuaded that Dr. Negus’ testimony, that OVS Device 456 is capable of storing information other than commercials, does not indicate that OVS Device 456 cannot properly correspond to “addressable and reserved storage space for storing the particular advertising data,” as recited in independent claim 19. We construe the aforementioned claim limitation as “data storage section set apart just for storing the particular advertising data,” which does not exclude devices capable of storing information other than commercials. Order 6–9. We are persuaded that Hite’s disclosure that the only information actually stored on OVS

Device 456 are commercials, even if OVS Device 456 is capable of storing other information, is sufficient to constitute “addressable and reserved storage space for storing the particular advertising data.”

Second, we agree with Petitioner that Hite’s CID codes, display rules, and frequency indicator codes are advertising data. As an initial matter, we determine that the recited “advertising data” is not required to be “multimedia,” as asserted by the Patent Owner. Patent Owner purportedly bases its construction on claim language. PO Resp. 19 (“the ’494 Patent system requires those storage systems to store ‘digital multimedia data.’”). Independent claim 19 does recite, “receiving digital multimedia data, wherein the digital multimedia data comprises particular advertising data.” While this language does establish a relationship between “multimedia” and “advertising data,” the limitation refers to “digital multimedia data,” which, by the addition of the term “data,” encompasses information associated with “multimedia,” and not just “multimedia” alone. Indeed, in its claim construction section, Patent Owner treats the “multimedia” language, from independent claim 19, separate from “advertising data.” PO Resp. 6 (“These additional elements make clear that . . . the device of Claim 19 [is] designed to have the capability of storing multimedia programming data *in addition to* advertising data”) (emphasis added).

To that end, Hite discloses that “[e]ach commercial is analyzed as to its nature and focus and a Commercial Identifier (CID) code is appended,” “[i]f there was a CID at a break, the processor would apply the display rules for the stored, addressable ads,” and “[a]ppropriate storage is provided at the display site to store one or more of the commercials selected by matching the commercial’s CID with that CID determined as appropriate for the

display site.” Ex. 1009, 3:43–45, 7:26–28, 7:37–42. Given those disclosures, we find that CID codes and display rules are clearly related to the commercials, which we find sufficient to meet “advertising data.” Patent Owner, and Dr. Kesan, attempt to distinguish control data, which Dr. Kesan concedes is advertising data, from CID codes, display rules, and frequency indicator codes, which Patent Owner appears to assert are not. Tr. 108:10–15. Beginning with “display rules,” we are unclear how “display rules” can be considered anything other than “control data.” With respect to CID codes, the assertion appears to be premised on the fact that CID codes disembodied from specific commercials are not control data. Tr. 109:10–18. The assertion is misplaced, as the claim term “advertising data” does not require that any “data” have any specific relationship with a particular commercial; a general relationship is sufficient. Thus, we are persuaded that a CID code being, among other things, a “Commercial Identifier” is information sufficiently related to “advertising” to correspond properly to the recited “advertising data.” A similar analysis is applicable to “frequency indicator codes,” which we also find are, at a minimum, information related to advertising and, thus, “advertising data.”

For the reasons given, Petitioner has demonstrated adequately that Hite discloses “addressable and reserved storage space for storing the particular advertising data,” as recited in independent claim 19.

b. “at least one processor configured to reserve said at least one addressable storage space”

Related to the above arguments, Patent Owner argues that, because Hite does not disclose a reserved data section set aside just for advertising data, Hite’s Commercial Processor cannot be configured to “reserve said at least one addressable storage space.” PO Resp. 28–29. Patent Owner

contends that “[r]eserving the advertising space requires the processor to exercise a level of control necessary to exclusively designate the storage space for advertising data apart from other non-advertising data,” which Hite’s processor does not do. PO Resp. 29 (citing Ex. 2003, App’x C ¶¶ 464–65).

As explained above, we agree with Petitioner that Hite’s OVS Device 456 is set apart just for advertising data, and, therefore, the OVS is reserved. Further, with respect to the processor, we agree with Petitioner that Hite’s processor controls what is stored on the OVS. Pet. Reply 11 (citing Ex. 1009, 6:10–18, 8:18–27; Ex. 1008 ¶¶ 571, 725, 439, 440). Hite discloses that commercial processor 438 at the display site is “programmed” to analyze CID codes to select commercials with codes that match the codes stored for a viewer, and the selected matching commercials are “stored” at the display site. Ex. 1009, 3:65–4:8, 6:66–7:12, 7:24–26, 7:38–42. Commercial processor 438 “cause[s] commercial signals to be stored” in OVS Device 456 by conveying signals that “control” storage of the commercials in that device. Ex. 1009, 14:28–32, 14:41–46, Fig. 5.

For the reasons given, Petitioner has demonstrated adequately that Hite discloses “at least one processor configured to reserve said at least one addressable storage space,” as recited in independent claim 19.

c. “at least one storage device”

Patent Owner argues that the “at least one storage device” is a separate element from the “addressable and reserved storage space” just for advertising data, and that the “storage device” includes a storage section, separate from the reserved storage space, for storing non-advertising content. PO Resp. 30–32. Patent Owner makes several arguments that the claimed

“storage device” requires the capability for a user to select programming to record and store for later playback. PO Resp. 30–36. In light of these alleged requirements of the claimed “storage device,” Patent Owner asserts that Hite’s OVS device does not teach this limitation. *Id.*

Petitioner responds, and we agree, that nothing in claim 19 precludes the “at least one storage device” from comprising the “addressable and reserved storage space.” Pet. Reply 13 (citing Ex. 1003, 48:20–32). Further, we are not persuaded by Patent Owner’s arguments that the “storage device” requires storage and playback of content, because, as discussed in our Order, we are persuaded that a proper construction of “storage device” does not require recording programming content for later playback. Order 9–12.

Accordingly, we are persuaded that Petitioner has shown sufficiently that Hite’s OVS Device 456 corresponds properly to the recited “at least one storage device.”

d. “predefined criteria data”

Patent Owner asserts Hite’s CID codes do not disclose the claimed “predefined criteria data,” because the CID codes are “not based on an individual user’s ‘programming preferences, buyer preferences, customer profiles, demographics or activity history from on-line monitoring.’” PO Resp. 36 (citing Ex. 2003 ¶ 32). Patent Owner further contends that, even under Petitioner’s overly broad construction, Hite’s CID codes are unrelated to demographics or cost effectiveness. PO Resp. 36–37 (citing Ex. 1009, 1:32–33, 3:25–27, 8:29–31; Ex. 2003 ¶ 32). Petitioner responds that Patent Owner’s assertions are premised on an incorrect, overly narrow

claim construction, but that, in any case, Hite meets even that construction. Pet. Reply 14–16 (citing Ex. 1009, 1:28–32).

We construe “predefined criteria data” as being met by customer profile data and demographics, which does not require that any such “data” be either “preferences,” or come from “users” themselves. Order 12–14. To that end, we are persuaded that CID codes are sufficiently related to customer profiles and demographics to correspond properly to the recited “predefined criteria data.” Ex. 1009, 1:28–32 (“First, advertisers believe that placing their commercials in specific programs will ensure that they reach the right kind of viewers (usually based on crude demographic assumptions, e.g., women 18–49 are likely to be the best prospects for their product.)”). Specifically, we find that Hite discloses expressly that CID codes are assigned to viewers based on demographic information. *See, e.g.*, Ex. 1009, 3:65–4:2 (“A suitable process is used to target prospective viewers of a set of advertisements using database search and list selection procedures. The result of this process is a set of appropriate CID codes for the prospective viewers. These CID codes are transmitted to the viewing device and stored.”).

Patent Owner asserts further “Hite teaches away from using demographics as a metric for advertising data: ‘Advertisers however are aware that demographic targeting is highly wasteful.’” PO Resp. 37 (quoting Ex. 1009 at 1:32–33). Patent Owner’s assertion is misplaced, as teaching away is a doctrine applicable to obviousness, and not anticipation. *Celeritas Techs., Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). In any case, Patent Owner’s assertion is also incorrect, in that the context of the above-referenced sentence in Hite is concerning

appending commercials to specific programs “based on crude demographic assumptions” of the viewers of such programs. Ex. 1009, 1:26–35. Indeed, the first sentence of the very next paragraph reads as follows: “Target marketing is the answer. Deliver your commercial to only those who are the best prospects.” Ex. 1009, 1:36–37. The balance of Hite is then directed to implementing such “[t]arget marketing,” and we have analyzed above already how CID codes are based on customer profiles and demographics.

Thus, Petitioner has demonstrated adequately that Hite discloses the “predefined criteria data.”

e. Conclusion

Upon review of Petitioner’s evidence and analysis, and taking into account Patent Owner’s arguments and evidence, we determine that Petitioner has met its burden of showing, by a preponderance of the evidence, that independent claim 19 is anticipated by Hite.

4. Dependent Claim 26

Claim 26 depends from independent claim 19 and recites, in relevant part, “processing circuitry configured to dynamically merge the particular advertising data with digital media content that is pre-stored in said at least one storage device.” Ex. 1003, 49:6–9. The plain claim language unambiguously and expressly requires that it is the “digital media content” that must be “pre-stored.” Yet in addressing the limitation, the Petition represents, and Dr. Negus testifies, that Hite discloses “‘*particular advertising data*’ that is ‘*pre-stored* in said at least one storage device’ (prior to the ‘dynamic merging’ with ‘digital media content’),” because commercials targeted for a display site or consumer according to CID codes are stored in the RD or video storage device. Pet. 26 (emphasis added);

Ex. 1008 ¶ 646 (emphasis added). These assertions that Hite’s system pre-stores what Petitioner identifies as the “*particular advertising data*,” targeted commercials selected using CID codes, fail to address or show adequately that Hite discloses “*digital media content that is pre-stored* in said at least one storage device,” as claim 26 explicitly requires.

Thus, we are unpersuaded that Hite discloses “digital media content that is pre-stored in said at least one storage device,” as recited in dependent claim 26. Accordingly, Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claim 26 is anticipated by Hite.

5. *Dependent Claim 32*

Dependent claim 32 recites “[t]he device of claim 19 . . . wherein said at least one addressable and reserved storage space is a partitioned area of a hard disk drive.” Ex. 1003, 49:55–58. Petitioner refers to Hite’s disclosures that its storage devices “can be . . . disks.” Pet. 27–28 (quoting Ex. 1009, 12:6–11; citing Ex. 1009, 10:44–49). Dr. Negus testifies that “‘disks’ at the alleged time of the invention of the ’494 patent were commonly known as ‘hard disk drives.’” Ex. 1008 ¶ 680 (emphases omitted). Petitioner and Dr. Negus represent that a person of ordinary skill in the art would, therefore, “have understood Hite to disclose the use of an entire ‘disk’ (or ‘hard disk’) as the ‘Video Storage Device’” or the RD. Pet. 28 (citing Ex. 1008 ¶ 680). Petitioner, with supporting testimony from Dr. Negus, further contends that “[w]hen the entire ‘hard disk’ storage space is undivided, it is within the broadest reasonable interpretation of the claimed ‘partitioned area of a hard disk drive.’” Pet. 28; Ex. 1008 ¶¶ 680, 683.

We disagree. Based on Hite’s explanation that “[t]he storage devices used to implement” its system “can be . . . disks” as well as the evidence before us that “disks” or “hard disks” were known as “hard disks drives” at the relevant time, we agree with Petitioner that an ordinarily skilled artisan would have understood Hite to use an entire disk, hard disk, or hard disk drive for OVS Device 456 and for the RD. Ex. 1009, 10:44–49, 12:6–11; Ex. 1008 ¶ 680; see Ex. 3002 (MICROSOFT COMPUTER DICTIONARY (5th ed. 2002)), 246 (explaining, within definition of “hard disk,” that a “hard disk” is “[a]lso called: hard disk drive” and defining “hard disk drive” as “See hard disk” (emphases omitted)). We part ways with Petitioner, however, in its proffered conclusion that such an “entire,” “undivided” hard disk or hard disk drive falls within the ordinary meaning of “partitioned area of a hard disk drive.” Pet. 28; Ex. 1008 ¶¶ 680, 683; see Ex. 3001, 1087 (defining “partition” as “divide into parts”). The claim language expressly requires a “partitioned area of”—not a whole, entire, or undivided—hard disk drive. Thus, we disagree that an entire hard disk or hard disk drive constitutes the “partitioned area of a hard disk drive” required by claim 32.

Accordingly, we are unpersuaded that Hite discloses “wherein said at least one addressable and reserved storage space is a partitioned area of a hard disk drive,” as recited in dependent claim 32. Thus, Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claim 32 is anticipated by Hite.

6. *Independent Claim 33*

Independent claim 33 of the ’494 patent recites “a central control unit operably connected to an advertising data server.” Ex. 1003, 46:61–63. In addressing Hite’s alleged disclosure of this limitation, Petitioner identifies

Hite's AAF 100 as the recited "advertising data server." *See, e.g.*, Pet. 31–32 ("AAF is an 'advertising data server'"); Ex. 1008 ¶¶ 707, 713. With respect to the recited "central control unit," Petitioner identifies two sets of components in Hite as meeting this element. First, Petitioner argues that Hite's "AAF [100] in combination with ATF [200] and MOF [300]" constitutes the "central control unit." Pet. 31; *see, e.g.*, Pet. 30 (annotated Figure 1); Pet. 42; Ex. 1008 ¶¶ 707, 713. Petitioner contends that in Hite, AAF 100 ("advertising data server") is operably connected to AAF 100 in combination with ATF 200 and MOF 300 ("central control unit") "by being comprised within the disclosed 'central control unit.'" Pet. 31–32; Ex. 1008 ¶¶ 707, 713. Second, the Petition can be read to identify Hite's AAF 100 alone as the "central control unit." *See, e.g.*, Pet. 42 ("central control unit (AAF)"); Pet. 32 (referring to "AAF deliver[ing] commercials" in discussing limitation requiring "a central control unit . . . in communication with . . . storage spaces").

Petitioner's identifications of the "central control unit" and the "advertising data server" in Hite are precluded by our interpretation of "a central control unit operably connected to an advertising data server," as discussed in our Order. In light of our conclusion that the recited "advertising data server" cannot be the same component or a sub-component of the "central control unit" within the meaning of the claim language, Hite's AAF 100 cannot be both the "central control unit" and "advertising data server" recited in claim 33. Nor can Hite's AAF 100, in combination with ATF 200 and MOF 300, be the "central control unit" and AAF 100, a sub-component or part thereof, be the "advertising data server."

Therefore, we are unpersuaded that Hite discloses, “a central control unit operably connected to an advertising data server,” as recited in independent claim 33. Accordingly, Petitioner has not met its burden of showing, by a preponderance of the evidence, that independent claim 33 is anticipated by Hite.

7. *Dependent Claims 34–36 and 41*

Claims 34–36 and 41 each depend from independent claim 33. Ex. 1003, 50:14–62. Thus, the deficiencies discussed above with respect to Petitioner’s showing regarding claim 33 also apply to these claims. Petitioner’s specific arguments directed to the additional limitations of claims 34–36 and 41 do not cure the deficiencies. *See* Pet. 43–56. Accordingly, Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claims 34–36 and 41 are anticipated by Hite.

8. *Summary*

In sum, for the reasons given, Petitioner has met its burden of showing, by a preponderance of evidence, that Hite anticipates claim 19 of the ’494 patent. Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claims 26, 32–36, and 41 are anticipated by Hite.

D. *Claims 19, 26, 32–36, and 41 as Obvious over Hite and Hill*

1. *Principles of Law*

Under 35 U.S.C. § 103(a), a patent claim is unpatentable as obvious if the claimed “subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” To

establish obviousness in an *inter partes* review, it is petitioner’s “burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *In re: Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (citation and quotation omitted). A petitioner cannot satisfy this burden by “employ[ing] mere conclusory statements” and “must instead articulate specific reasoning, based on evidence of record” to support an obviousness determination. *Id.* at 1380. Stated differently, there must be “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The “factual inquiry” into the reasons for “combin[ing] references must be thorough and searching, and the need for specificity pervades.” *In re Nuvasive, Inc.*, 842 F.3d 1376, 1381–82 (Fed. Cir. 2016) (quotations and citations omitted). A determination of obviousness cannot be reached where the record lacks “explanation as to *how* or *why* the references would be combined to produce the claimed invention.” *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016); *see Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017) (holding obviousness determination improper where the record lacked a “clear, evidence-supported account of” “how the combination” would work).

2. *Hill (Ex. 1010)*

Hill discloses a storage device “partition[ed] . . . into a plurality of devices that have different access and storage characteristics.” Ex. 1010,

[57], 2:47–51, 4:28–33. Hill provides for “automatic placement” of digital data on the partitioned device that best meets the storage characteristics of the data. Ex. 1010, [57], 1:8–11, 2:52–57, 8:15–20. In Hill, the storage characteristics of data are represented by its “access density” and are related to its “volume and frequency of access.” Ex. 1010, [57], 2:55–57, 4:36–57.

In one exemplary embodiment, Hill discloses, “disk storage device 20 including two disks 22 and 24,” with the surface of each disk “partition[ed]” into high access partition 40 and low access partitions 42, 44. Ex. 1010, 4:20–33, Figs. 3–4. Hill explains that the partitions are “defined to the system processor as two unique devices.” Ex. 1010, 7:9–12.

According to Hill, its storage technique “results in more cost effective data storage” and prevents bottlenecking, which occurs when a storage device receives access requests from a processor at a faster rate than the device can sustain and which often results in degradation of the rate at which data records are stored or retrieved. Ex. 1010, 1:13–17, 8:8–25.

3. *Independent Claim 19*

Petitioner contends that to the extent Hite does not disclose the “addressable and reserved storage space for storing the particular advertising data” of claim 19, the combination of Hite and Hill teaches this limitation. Pet. 56–58. Petitioner argues that Hill’s disclosure of a storage device with a high access partition that is “separately defined” as a “unique device[]” from a low access partition and that is “reserved for data with the same access density” as the data stored on the high access partition teaches an “addressable and reserved storage space” for storing digital data. Pet. 58; Ex. 1008 ¶ 598. Petitioner further asserts that Hite discloses storage of digital advertising data in a hard disk drive. Pet. 58; Ex. 1008 ¶ 598.

Petitioner, with supporting testimony from Dr. Negus, argues that a person of ordinary skill in the art would have combined Hite's system with Hill's teaching of a high access partition in order to increase storage efficiency and address Hite's goal of providing "advertisers with less waste and greater cost effectiveness." Pet. 60; Ex. 1008 ¶ 599 (quoting Ex. 1009, 3:21–35; citing Ex. 1010, 4:54–57). According to Petitioner and Dr. Negus, one of ordinary skill would have had reason to combine Hite and Hill—using Hill's "high access partition allocated for high access data storage" to "store the high access advertisement data of Hite"—to "yield[] the completely predictable and desirable result" of "decrease[d] read and write times of advertisement data stored in Hite's" storage devices, including optional video storage device 456. Pet. 60, 65; Ex. 1008 ¶ 599; *see also* Tr. 107:10–15 (asserting the same).

Patent Owner argues Dr. Negus' assertion that advertising data is "high access data" is unsupported (PO Resp. 25), and, rather, advertising data has such low priority that there may not be storage room available on the user's local receiver for advertising (PO Resp. 25–26 (citing Ex. 1002 ¶ 12)). According to Patent Owner, "the idea that the programming would be lower access and the ads would be higher access just kind of doesn't stand a common sense test." Tr. 119:2–4. Patent Owner contends that, although Hite teaches substituting preemptable commercials, Hite is silent regarding "preemptable time slots" and does not suggest a time bottleneck in substituting commercials. Prelim. Resp. 33–34.

Patent Owner further argues a person of ordinary skill in the art would not have been motivated to combine Hite with Hill, because there would be no benefit to combine the references and because the references are non-

analogous art. PO Resp. 39–43. Patent Owner’s expert, Dr. Kesan, states there is no benefit to combining Hite with Hill, because all broadcast data needs to be accessed at the same speed. PO Resp. 40–41; Ex. 2003, App’x C ¶¶ 268–269; *see also* Tr. 119:5–10 (asserting the same). Patent Owner asserts that, assuming Hite’s storage device contains only advertising data, using the high access section for advertising data results in wasted storage space because the low access partition would be empty. PO Resp. 41–42; *see also* Tr. 119:21–120:5 (asserting the same).

Petitioner responds that Patent Owner has not effectively rebutted the evidence provided by Dr. Negus, which “makes it clear that a POSITA would have looked to Hill’s high access partition to further address an issue identified by Hite to increase storage efficiency and accomplish the object of providing ‘advertisers with less waste and greater cost effectiveness in delivering their messages only to those consumers.’” Pet. Reply 17–18; Ex. 1008 ¶ 599 (citing Ex. 1009, 3:21–35; Ex. 1010, 4:54–57).

We agree with Patent Owner that Petitioner’s proffered rationale for combining Hite with Hill is not adequately supported by the record. Specifically, we agree with Patent Owner that Petitioner’s assertion that advertising data is “high access” data is a conclusory statement that fails to “articulate specific reasoning, based on evidence of record” to support an obviousness determination. *In re: Magnum Oil Tools Int’l, Ltd.*, 829 F.3d at 1380. Although Hite discusses preempting broadcast commercials with stored commercials at broadcast breaks (*see* Ex. 1009, 7:24–30), Petitioner does not cite any portion of Hite, or provide any evidence at all, that explains how frequently the advertising data would have been accessed.

Accordingly, because Petitioner has not shown adequately that it would have been obvious to one of ordinary skill in the art to combine Hite and Hill to arrive at “addressable and reserved storage space for storing the particular advertising data,” as recited in independent claim 19, we are unpersuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that independent claim 19 is obvious over Hite and Hill.

4. *Dependent Claim 26*

None of Petitioner’s assertions concerning dependent claim 26 are set forth as relevant to the aforementioned limitations of independent claim 19. *See* Pet. 58. Thus, for the same reasons discussed above with respect to independent claim 19, Petitioner has not met its burden of demonstrating that dependent claim 26 is obvious in view of Hite and Hill.

5. *Dependent Claim 32*

None of Petitioner’s assertions concerning dependent claim 32 are set forth as relevant to the aforementioned limitations of independent claim 19. *See* Pet. 58. Petitioner further contends that, “[t]o the extent that the Board finds that Hite does not disclose the ‘partitioned area of a hard disk drive’ of claim 32, Hill discloses this element,” and relies on the discussion of Hill’s high and low access partitions to teach this limitation. Pet. 58–59. As discussed above with respect to claim 19, Petitioner has not adequately shown it would have been obvious to one of ordinary skill in the art to combine Hite and Hill. For the same reasons, we are unpersuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that claim 32 is obvious over Hite and Hill.

6. *Independent Claim 33 and Dependent Claims 34–36 and 41*

Petitioner challenges claims 33–36 and 41 as obvious over Hite and Hill. Pet. 56–60. In each of these asserted obviousness grounds, Petitioner relies on its showing in the asserted anticipation ground that Hite allegedly discloses independent claim 33’s limitation “a central control unit operably connected to an advertising data server.” Pet. 29, 56–59. Petitioner does not rely on Hill to address this limitation.

As explained above in our analysis of the asserted anticipation ground, Petitioner has not demonstrated that Hite discloses, “a central control unit operably connected to an advertising data server,” as recited in claim 33. For the same reasons, Petitioner has not shown sufficiently that Hite teaches, suggests, or otherwise would have conveyed this limitation to a person of ordinary skill in the art. Petitioner’s arguments regarding the asserted grounds of obviousness over Hite and Hill do not cure this deficiency. Pet. 56–60.

Accordingly, we are unpersuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that claims 33–36 and 41 are obvious over Hite and Hill.

7. *Summary*

In sum, for the reasons given, Petitioner has not met its burden of showing, by a preponderance of the evidence, that claims 19, 26, 32–36, and 41 are obvious over Hite and Hill.

E. *Claims 26 and 32 as Obvious over Hite and Baji*

1. *Baji (Ex. 1025)*

Baji discloses a broadcast system that can insert a commercial into a program. Ex. 1025, 3:30–49, 3:64–4:12. In one embodiment, the system

includes subscriber system 115 with “commercial buffer 160 for temporarily stor[ing] . . . a commercial” and “program buffer 161 for providing a wait time associated with a video signal from the video data base for . . . commercial insertion.” Ex. 1025, 8:7–34, Fig. 1–2. Mixer 162 reads video data from commercial buffer 160 and program buffer 161 according to an index, which includes a commercial insertion sequence. Ex. 1025, 8:34–40, Fig. 1–2. When the index indicates a commercial insertion point, mixer 162 stops the read operation on program buffer 161 and reads a commercial from commercial buffer 160. Ex. 1025, 9:3–10. Mixer 162 “mixe[s]” the program (e.g., motion picture) and commercials, and passes “a composite or mixed signal” to television monitor 114 for display. Ex. 1025, 8:34–45, 9:3–16.

In another embodiment, Baji explains that control information transmitted from a subscriber initiates video recorder 133, “thereby recording the programs and commercials.” Ex. 1025, 13:26–55, Figs. 17A–B.

2. *Claim 26*

Petitioner contends that, to the extent Hite does not disclose claim 26’s limitation reciting “processing circuitry configured to dynamically merge the particular advertising data with digital media content that is pre-stored in said at least one storage device for presenting the particular advertising to the at least one end user during playback of the digital media content,” Baji teaches this limitation. Pet. 60–63. Petitioner asserts Baji teaches mixer 162 (“processing circuitry”) dynamically merges commercials, stored in commercial buffer 160, with a broadcast program (“digital media content”), pre-stored in program buffer 161, to display the

commercials to the viewer during the program. *Id.*; Ex. 1025, 8:7–45, 9:3–16; Ex. 1008 ¶¶ 654–55.

Patent Owner contends “pre-stored” content includes video on demand and similar functionality, where content is stored on long-term memory storage for later playback. PO Resp. 44–45 (citing Ex. 1003, 42:57–43:9, 44:22–25, 45:47–53). According to Patent Owner, Baji’s buffers do not “pre-store” content, but rather, the buffers temporarily hold data to allow for processing to immediately display the content. PO Resp. 45 (citing Ex. 1025, 8:31 and Ex. 2003, App’x C ¶ 104). In response, Petitioner asserts that claim 26 does not require that “the ‘pre-storage’ be for a particular time period or end in response to a user action.” Pet. Reply 19–20. We agree with Petitioner. The plain meaning of “pre-storage” in claim 26 merely requires storing data for some period of time before playback. Ex. 1003, 49:6–11. Baji teaches “the program content is pre-stored in the program buffer for a specified delay or ‘wait’ time,” and we agree with Petitioner that this is a sufficient teaching of “pre-stored” content. Pet. Reply. 19 (citing Ex. 1008, ¶ 654).

Patent Owner further contends that Baji’s buffers store only analog data, not the digital data required by claim 26. PO Resp. 46–48 (citing Ex. 1025, 10:49–63). Petitioner replies, and we agree, that Hite teaches the “digital multimedia data” limitation, and Baji was relied upon to teach the concept of a buffer that pre-stores content data for dynamic merging with advertising data during playback. Pet. Reply 20. We agree with Petitioner that a person of ordinary skill in the art at the time of the ’494 patent would have recognized the ability to use Baji’s data buffering concept to pre-store

digital content. *See KSR* 550 U.S. at 421 (A person of ordinary skill is a person of ordinary creativity, not an automaton.).

Turning to the alleged rationale to combine, Petitioner asserts that one of ordinary skill in the art would have had reason to combine Hite and Baji, both of which are directed to inserting advertisements into a program for display to a user. Pet. 64 (citing Ex. 1008 ¶ 656.) Petitioner, with supporting testimony from Dr. Negus, represents that Baji’s pre-storage of program content in the program buffer provides the benefit of “allow[ing] the mixer time to process and combine the program content with commercial content” in order to “merg[e]” the program and commercials “into a seamless video stream” for display. Pet. 62 (citing Ex. 1008 ¶ 654). Thus, according to Petitioner, an ordinarily skilled artisan would have incorporated Baji’s teaching of merging pre-stored advertising and program content, into Hite’s system, “to avoid delays associated with downloading the content” and that such delay avoidance would have been the “predictable and desirable result” of the combination. Pet. 64 (citing Ex. 1008 ¶ 656).

Patent Owner argues a skilled artisan would not have been motivated to combine the buffer of Baji with the Hite system because Hite uses a switch to insert commercials in broadcast breaks, which is different than the mixer system used in Baji. PO Resp. 49–50 (citing Ex. 1009, 6:27–39, 7:42–51; Ex. 1008 ¶ 654). Further, Patent Owner contends “delays associated with downloading the content” is not a concern in Hite and, regardless, would not be solved by the buffers of Baji. PO Resp. 50 (citing Ex. 1008 ¶ 656).

Petitioner replies that, despite a lack of discussion in Hite regarding “delays associated with downloading the content,” the rationale to combine

the references “need not be found expressly in the prior art itself but may be explained by the fact finder using common sense.” Pet. Reply 20–21 (citing *KSR*, 550 U.S. 398 at 402). Petitioner asserts that Patent Owner has not effectively rebutted the evidence provided by Dr. Negus that it would have been obvious to combine the features of Hite and Hill. Pet. Reply 21 (citing Ex. 1008 ¶¶ 656, 694).

Even considering Patent Owner’s arguments, we agree with Petitioner, which has provided “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness,” specifically that using a data buffer is a known method of avoiding delays when downloading and displaying data. Pet. 64–65 (citing Ex. 1008 ¶¶ 656, 694); see *KSR*, 550 U.S. at 417–18 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). In particular, we are unclear as to why Hite’s use of a switch system precludes the use of the mixer system of Baji. Further, we are unpersuaded that the fact that Hite does not disclose delays in downloading content indicates that such delays do not exist. Thus, we agree with Petitioner that a skilled artisan would have combined the buffer of Baji with the Hite system for the reasons stated.

After considering Petitioner’s and Patent Owner’s positions, as well as their supporting evidence, we determine that, by a preponderance of the evidence, Petitioner has shown that the limitations of claim 26 are taught by the combination of Hite and Baji.

a. Secondary Considerations

Patent Owner asserts objective secondary considerations of nonobviousness indicate claim 26 is not obvious over Hite and Baji.

PO Resp. 54–59 (citing Ex. 2003, App’x C ¶¶ 701–18). Petitioner disagrees. Pet. Reply 22–23 (citing Ex. 1029, App’x A).

i. *Principles of Law*

Factual inquiries for an obviousness determination include secondary considerations based on objective evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984).

We note that it is not sufficient that a product or its use merely be within the scope of a claim in order for objective evidence of nonobviousness tied to that product to be given substantial weight. There must also be a causal relationship, termed a “nexus,” between the evidence and the claimed invention. *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1376 (Fed. Cir. 2005). A nexus is required in order to establish that the evidence relied upon traces its basis to the merits of the claimed invention or the feature that distinguishes over the prior art, not to something in the prior art. *Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, 738 F.3d 1337, 1347 (Fed. Cir. 2013). Objective evidence that results from something that is not both claimed and a feature that distinguishes over the prior art, lacks a nexus to the merits of the invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011).

All types of objective evidence of nonobviousness must be shown to have nexus. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995) (nexus

generally); *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (commercial success); *Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1364 (Fed. Cir. 2012) (copying); *Rambus Inc. v. Rea*, 731 F.3d 1248, 1256 (Fed. Cir. 2013) (long-felt need); *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1328 (Fed. Cir. 2008) (praise). The stronger the showing of nexus, the greater the weight accorded the objective evidence of non-obviousness. See *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 (Fed. Cir. 1985).

“Where the allegedly obvious patent claim is a combination of prior art elements, . . . the patent owner can show that it is the claimed combination as a whole that serves as a nexus for the objective evidence.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1330 (Fed. Cir. 2016) (citing *Rambus*, 731 F.3d at 1258). “[T]here is a presumption of nexus for objective considerations when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘is the invention disclosed and claimed in the patent.’” *WBIP*, 829 F.3d at 1329. Secondary consideration evidence is accorded less weight for claims that are considerably broader than the particular features in the asserted evidence. See *ClassCo, Inc. v. Apple*, 838 F.3d 1214, 1221–22 (Fed. Cir. 2016).

i. Nexus

Patent Owner does not address directly the nexus between the asserted objective evidence and claim 26. See generally PO Resp. 54–59 (citing Ex. 2003, App’x C ¶¶ 701–18). Patent Owner’s evidence generally refers to “an advanced, addressable TV advertising system as described and claimed by the ’494 Patent” (PO Resp. 55), and discusses the difficulty in the industry in sustaining scalable, addressably-targeted TV advertising (*Id.* at

58). Patent Owner, however, does not provide any further details with respect to specific limitations for any claims, whether independent claim 19 or dependent claim 26. Petitioner argues there is no nexus between Patent Owner's evidence of secondary considerations and any claim, whether independent claim 19 or dependent claim 26. Pet. Reply 23 (citing Ex. 1029 ¶ 9).

We agree with Petitioner. “[T]here is no nexus unless the evidence presented is reasonably commensurate with the scope of the claims.” *ClassCo, Inc.*, 838 F.3d at 1220 (citations and quotations omitted). Patent Owner's objective evidence consists of Patent Owner's technical expert, Dr. Kesan, opining on the report of a marketing and advertising expert, Mr. Timothy Hanlon.⁷ See Ex. 2003, App'x C ¶¶ 701–18. Patent Owner does not point out, nor can we find, any discussion by either Dr. Kesan, or Mr. Hanlon, for that matter, as to how the objective evidence of long-felt need, failure of others, or industry skepticism is tied to specific features of claim 26. Patent Owner only offers is a general statement concerning “an advanced, addressable TV advertising system as described and claimed by the '494 Patent.” PO Resp. 55. And unlike for an undisputed mapping a claim to a product, for which our reviewing court has accepted such terse, general statements, *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1073 (Fed. Cir. 2018), we are unpersuaded that Patent Owner is similarly entitled to a presumption of nexus where the secondary considerations at issue involve long felt need, failure of others, or industry skepticism, where

⁷ We note that Patent Owner neither entered the referenced report as evidence in this proceeding, nor provided a declaration from Mr. Hanlon.

comparisons to the claim limitations are much more difficult to perform. Accordingly, based on the evidence before us, we are not persuaded that Patent Owner has met its burden of showing that it is entitled to a presumption of nexus between the objective evidence of non-obviousness and the challenged claim. For completeness, however, we address substantively Patent Owner's objective evidence of non-obviousness.

ii. *Long-Felt Need*

Establishing long-felt need requires objective evidence that an art-recognized problem existed in the art for a long period of time without solution. In particular, the evidence must show that the need was a persistent one that was recognized by those of ordinary skill in the art. *In re Gershon*, 372 F.2d 535, 539 (CCPA 1967). The long-felt need must not have been satisfied by another before the invention. *Newell Co. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988). Finally, the invention must satisfy the long-felt need. *In re Cavanagh*, 436 F.2d 491, 496 (CCPA 1971). When determining the amount of weight to afford the objective evidence, we must take “into account the degree of the connection between the features presented in evidence and the elements recited in the claims.” *ClassCo, Inc.*, 838 F.3d at 1221.

Patent Owner and Dr. Kesan assert that, according to Mr. Hanlon, the need for an advanced, addressable TV advertising system, as claimed in the '494 patent, existed as early as the mid-1970s. Ex. 2003, App'x C ¶ 704. Mr. Hanlon discusses the history of interactive TV services, where “each featur[ed] some kind of ‘advanced’ targeted advertising component or mechanism.” Ex. 2003, App'x C ¶ 707. Petitioner argues Patent Owner has

not demonstrated a long-felt need specifically for the alleged inventions described in the claims of the '494 patent. Ex. 1029 ¶¶ 6–13.

As an initial matter, we note that Patent Owner's analysis regarding long-felt need is difficult to evaluate and amorphous. For example, Patent Owner uses words such as "advanced." "Advanced" is a term of comparison. Patent Owner has not articulated clearly, however, what the claimed invention is supposed to be compared to. Even if we take at face value the above need for an "advanced, addressable TV advertising system," we are unclear as to how the advertising device of claim 26 satisfies that alleged long-felt need. Indeed, the only difference we can ascertain between the purported historical "targeted advertising" and the alleged need is the "addressable" feature, however, Patent Owner has not identified any specific limitation, especially for claim 26, that corresponds to that feature.⁸ We are unable to identify any limitation specific to claim 26 that could be considered relevant to any "addressable" feature, and note further that Baji is cited only for the "dynamically merge the particular advertising data with [digital] media content that is pre-stored" limitation (Pet. 60–63), which we find unrelated to "addressable." Further, we note that Patent Owner's objective evidence consists of a technical expert opining on a marketing expert's report, which is not, itself, evidence in the current record. We find

⁸ Moreover, insofar as any such feature is recited in independent claim 19, we have determined above that independent claim 19 is anticipated by Hite, indicating that any such feature recited in independent claim 19 alone, and any problem it solves, was already in the prior art. *Newell Co.*, 864 F.2d at 768.

that relying on such a chain of evidence is questionable, at best, and, thus, entitled to little weight.

Considering the factors discussed above, particularly the lack of connection between the features presented in Patent Owner's evidence and the elements explicitly recited in claim 26, we determine that Patent Owner's evidence of long-felt need is entitled to little weight.

iii. Failure of Others

We next evaluate the strength of Patent Owner's evidence concerning failure of others "to develop and scale long-term addressably-targeted TV advertising solutions." PO Resp. 58–59 (citing Ex. 2003, App'x C ¶¶ 715–18). Objective evidence of failure of others requires establishing "the widespread efforts of skilled workers having knowledge of the prior art had failed to find a solution to the problem." *In re Allen*, 324 F.2d 993, 997 (CCPA 1963).

Patent Owner cites to excerpts of Mr. Hanlon's testimony, which alleges "a 'long string of broken promises made by' Warner QUBE interactive cable TV, Time Warner Cable's Full Service Network, Wink, ACTV, Liberty Media-owned OpenTV, and others, 'dashed [the] hopes of . . . marketers [and] bred continued caution and wariness among principals in the ad industry.'" Ex. 2003, App'x C ¶ 716. Patent Owner asserts these "failed attempts of others in the advanced television industry . . . continually inhibited the broader adoption of addressably-targeted TV advertising by the marketers and agencies that have desired it most." Ex. 2003, App'x C ¶ 717. In response, Petitioner argues the systems cited by Patent Owner should not be considered failures, and asserts evidence of market success for those systems. Ex. 1029 ¶¶ 21–30.

We agree with Petitioner. Patent Owner has failed to identify any specific limitation, especially for claim 26 specifically, that corresponds to developing and scaling long-term addressably-targeted TV advertising. Patent Owner characterizes the alleged failure of others as inhibiting “the *broader* adoption of addressably-targeted TV advertising,” which appears to actually indicate that there was at least some level of adoption for those addressably-targeted TV advertising systems, and weighs against a finding of the failure of others. In particular, Patent Owner does not cite any specific evidence to support Mr. Hanlon’s position concerning the commercial failure of the cited TV systems, for example, the lack of subscribers or operating losses. *See generally* Ex. 2003, App’x C ¶¶ 715–18. Furthermore, Petitioner rebuts Patent Owner’s assertions by providing evidence of thousands of subscribers for various systems cited by Patent Owner. Pet. Reply 22–23 (Ex. 1029 ¶¶ 21–30).

Accordingly, in view of Patent Owner’s lack of persuasive evidence as to the failure of the cited TV systems, and the lack of connection between the features presented in Patent Owner’s evidence and the elements explicitly recited in claim 26, we determine that Patent Owner’s evidence of failure of others is entitled to little weight.

iv. Industry Skepticism

Finally, we evaluate Patent Owner’s objective evidence of industry skepticism regarding “the long-term viability and sustainability of addressable TV advertising.” PO Resp. 57–58 (citing Ex. 2003, App’x C ¶¶ 711–14). “If industry participants or skilled artisans are skeptical about whether or how a problem could be solved or the workability of the claimed solution, it favors non-obviousness.” *WBIP*, 829 F.3d at 1335.

Patent Owner offers Mr. Hanlon's testimony that relatively few advertisers used the QUBE and ACTV targeted advertising systems, and, as of 1999, advertisers still had their doubts about addressable TV advertising systems. Ex. 2003, App'x C ¶ 713. Petitioner responds that, even if there was a "deficiency in enthusiasm" for the cited TV systems, Patent Owner has not demonstrated industry skepticism specifically for the alleged inventions described in the claims of the '494 patent. Ex. 1029 ¶¶ 14–20. Similar to our discussion above regarding long-felt need and failure of others, Patent Owner has not established a sufficient connection between the features presented in the evidence of industry skepticism and the elements explicitly recited in claim 26, and, thus, we determine that this objective evidence of skepticism is entitled to little weight.

v. *Overall Weighing of Relevant Factors Concerning Obviousness, Including Secondary Considerations*

We now weigh Patent Owner's evidence of secondary consideration in conjunction with the other factors relevant to obviousness for dependent claim 26. In summary, we find, for the reasons set forth above, that the targeted advertising system of Hite discloses all of the limitations of dependent claim 26, with the exception of "processing circuitry configured to dynamically merge the particular advertising data with digital media content that is pre-stored in said at least one storage device." For that, we find that it would have been well within the abilities and knowledge of one of ordinary skill in the art, at the time of the claimed invention, to modify the system of Hite to include the pre-storage buffer of Baji in order to avoiding delays when downloading and displaying data. We find further that Petitioner has identified overwhelming evidence, both in Baji and from Dr. Negus, that the modification itself, as well as the rationale for the

modification, were well-known to one of ordinary skill in the art, at the time of the invention. Against the above findings concerning Hite and Baji, we weigh Patent Owner's evidence of secondary considerations, each of which we have analyzed above and determined Patent Owner's evidence of (1) long-felt need; (2) failure of others, and (3) industry skepticism, individually and in the aggregate, is weak and entitled to little weight.

Overall, upon weighing the factors, we determine that the weak evidence of secondary considerations is insufficient to outweigh our strong finding that Hite, as modified by the on-point disclosures of Baji and the rationale provided by Petitioner, accounts for every limitation of dependent claim 26. Accordingly, we determine that claim 26 would have been obvious in view of Hite and Baji, as discussed above.

b. Conclusion

For the foregoing reasons, Petitioner has met its burden of showing, by a preponderance of the evidence, that dependent claim 26 is unpatentable over Hite and Baji.

3. Claim 32

We determined above that Petitioner fails to show sufficiently that Hite discloses claim 32's requirement of "a partitioned area of a hard disk drive." For the same reasons, Petitioner does not demonstrate adequately that Hite teaches or suggests this limitation. The Petition's⁹ analysis of this asserted ground of obviousness over Hite and Baji does not proffer Baji as disclosing, teaching, or suggesting any limitation of claim 32 other than the

⁹ To the extent Dr. Negus's declaration states opinions not presented in the Petition, they are not entitled to consideration. See Ex. 1008 ¶ 687; 37 C.F.R. § 42.6(a)(3).

“digital video recorder.” Pet. 60, 63–64. Thus, Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claim 32 is unpatentable over Hite and Baji.

4. *Summary*

In sum, for the reasons given, Petitioner has met its burden of showing, by a preponderance of evidence, that Hite and Baji render obvious claim 26 of the '494 patent. Petitioner has not met its burden of showing, by a preponderance of the evidence, that Hite and Baji render obvious claim 32 of the '494 patent.

F. Claims 26 and 32 as Obvious over Hite, Hill, and Baji

Patent Owner asserts that, to the extent that Hite and Hill do not sufficiently teach the limitations of claims 26 and 32, Baji teaches the additional limitations. Pet. 65–66. However, the deficiencies discussed above with respect to Petitioner’s showing of obviousness for claim 19, over Hite and Hill, also apply to claims 26 and 32 that depend therefrom. Petitioner’s additional contentions directed to Baji and claims 26 and 32 do not cure the deficiencies for claim 19, and, therefore, Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claims 26 and 32 are obvious over Hite, Hill, and Baji.

G. Claim 41 as Obvious over Hite and Barton, or Hite, Hill, and Barton

Claim 41 depends from independent claim 33. Ex. 1003, 50:55–62. Thus, the deficiencies discussed above with respect to Petitioner’s showing regarding claim 33, as anticipated by Hite alone and obvious in view of Hite and Hill, also apply to this claims. Petitioner’s specific arguments directed to Barton and the additional limitations of claim 41 do not cure these deficiencies. See Pet. 66–68.

Accordingly, Petitioner has not met its burden of showing, by a preponderance of the evidence, that dependent claim 41 is obvious over Hite, Hill, and Barton.

III. CONCLUSION

Petitioner has met its burden of showing, by a preponderance of the evidence, that claims 19 and 26 of the '494 patent are unpatentable. Petitioner has not met its burden of demonstrating, by a preponderance of the evidence, that claims 32–36 and 41 of the '494 patent are unpatentable.

IV. ORDER

Accordingly, it is:

ORDERED that claims 19 and 26 of the '494 patent are held unpatentable;

FURTHER ORDERED that claims 32–36 and 41 of the '494 patent are not held patentable on the grounds set forth in this proceeding; and

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

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