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Paper No. 39
Entered: January 17, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SLING TV, L.L.C., SLING MEDIA, L.L.C., DISH NETWORK L.L.C., DISH TECHNOLOGIES L.L.C., and ARRIS SOLUTIONS, INC.,
Petitioner,

v.

REALTIME ADAPTIVE STREAMING, LLC,
Patent Owner.

IPR2018-01331[1]
Patent 8,867,610 B2

Before KEVIN W. CHERRY, GARTH D. BAER, and NABEEL U. KHAN, *Administrative Patent Judges*.

BAER, *Administrative Patent Judge*.

ORDER
Granting Patent Owner's Motion to Terminate
37 C.F.R. § 42.5(a)

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[1] ARRIS Solutions, Inc., who filed a petition in IPR2019-00746 has been joined a petitioner in this proceeding.

On September 6, 2019, we authorized Patent Owner Realtime Adaptive Streaming, LLC ("Realtime Adaptive Streaming" or "Patent Owner") to file a motion to terminate this proceeding in view of the Precedential Opinion Panel's[2] recent decision in *GoPro, Inc. v. 360Heros, Inc.*, IPR2018-01754, Paper 38 (Aug. 23, 2019) (precedential). *See* Paper 24. Patent Owner filed its Motion to Terminate (Paper 27, "Motion" or "Mot.") on September 16, 2019. Petitioner Sling TV, Sling Media, Dish Network, Dish Technologies (collectively, "Sling") filed an opposition (Paper 28, "Sling Opposition" or "Sling Opp."). Joined party ARRIS Solutions, Inc. also filed a joint opposition to the Motion (Paper 29, "Joined Opposition" or "Joined Opp."). Patent Owner filed a reply. Paper 30 ("Reply").

For the following reasons, we grant Patent Owner's Motion and terminate this proceeding.

I. INTRODUCTION

A. BACKGROUND

On June 6, 2017, Realtime Data LLC ("Realtime Data") filed and subsequently served an amended complaint in the Eastern District of Texas naming Petitioner and alleging infringement of the '610 patent. Prelim. Resp. 2 (citing *Realtime Data LLC v. EchoStar Corp.*, No. 6:17-cv-00084-RWS-JDL). When Realtime Data filed its complaint, however, it did not own the '610 patent, because it had previously recorded an assignment to Realtime Adaptive Streaming on March 7, 2017. *See* Ex. 1023. Realtime

[2] *See* PTAB Standard Operating Procedure 2 (Revision 10) (Sept. 20, 2018) ("SOP2").

Data thus voluntarily dismissed the complaint without prejudice, and on October 10, 2017, Realtime Adaptive Streaming filed a complaint again naming Petitioner and alleging infringement of the '610 patent. Reply 2. Less than one year later, on July 3, 2018, Petitioner filed its Petition in this case. *See* Petition ("Pet.") 79.

In its Preliminary Response, Patent Owner argued that we should not institute review because the Petition was barred under 35 U.S.C. § 315(b). Paper 6. We allowed Sling to file a reply on this issue (Paper 7), and Patent Owner to file a Sur-Reply (Paper 8).

On January 31, 2019, we instituted this proceeding. *See* Paper 9 ("Decision on Institution" or "Dec. on Inst."). We determined that Sling had demonstrated a reasonable likelihood of prevailing on at least one challenged claim, and that the Petition was not barred under 35 U.S.C. § 315(b) because Realtime Data did not own the '610 patent when it served a complaint alleging infringement of the '610 patent on Sling. *See id.* at 5–13. In particular, we construed 35 U.S.C. § 315(b) based on the statute's heading—"Patent Owner's Action"—to require that the party serving the complaint had to be the owner of the patent. *See id.* at 6–7.

On February 27, 2019, ARRIS Solutions, Inc. ("ARRIS") filed a petition in IPR2019-00746 challenging the '610 patent. *See* IPR2019-00746, Paper 2 ("ARRIS Petition"). ARRIS's petition was accompanied by a motion for joinder to this proceeding. *See* IPR2019-00746, Paper 3 ("ARRIS Joinder"). Patent Owner did not file a preliminary response. On August 8, 2019, we instituted *inter partes* review and joined ARRIS as a party to this proceeding. *See* Paper 22 (IPR2019-00746 Institution Decision) ("746 Inst. Dec."). ARRIS had been sued for infringement of the '610

patent in the same June 6, 2017 case as Sling. Ex. 2001, 1, 58. ARRIS was served with a complaint on June 12, 2017. Ex. 2014.

B. LEGAL STANDARD

Section 315(b) provides that "an inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest or privy of the petitioner is served with a complaint alleging infringement of the patent." 35 U.S.C. § 315(b) (2018). The Federal Circuit recently held that "[35 U.S.C.] § 315(b)'s time bar is implicated once a party receives notice through official delivery of a complaint in a civil action, irrespective of subsequent events." *Click-to-Call Techs. v. Ingenio, Inc.*, 899 F.3d 1321, 1330 (Fed. Cir. 2018) ("*Click-to-Call*"). According to the Federal Circuit, "the plain meaning of the phrase 'served with a complaint' is 'presented with a complaint' or 'delivered a complaint' in a manner prescribed by law." *Click-to-Call*, 899 F.3d at 1330. Moreover, "Congress chose the date of service, as opposed to some other event, as the trigger for § 315(b)'s time bar because service of a complaint is the seminal notice-conferring event in a district court action." *Id.* at 1332.

The Precedential Opinion Panel has determined that "[t]he service of a pleading asserting a claim alleging infringement, including where the serving party lacks standing to sue or the pleading is otherwise deficient, triggers the one-year time period for a petitioner to file a petition under 35 U.S.C. § 315(b)." *GoPro*, Paper 38, at 24.

II. ANALYSIS

A. SLING

Patent Owner submits that it is undisputed that Sling was served with a complaint more than one year before the filing date of the Petition. Mot. 1. Patent Owner further submits that, even though Realtime Data did not own the '610 patent, *GoPro* holds that § 315(b) still bars the Petition and this proceeding should be dismissed. *Id.* at 1–6.

Sling raises several arguments why the case should not be terminated with respect to them. Sling Opp. 2–5. Sling argues that SOP2 "commands that precedential Board decisions are 'binding Board authority in ***subsequent matters*** involving similar facts or issues.'" *Id.* at 2. Because *GoPro* issued after this proceeding was instituted, Sling argues that *GoPro* is not binding under SOP2. *Id.*

We disagree with Sling. This Motion to Terminate is just such a "subsequent matter," even if the original Petition is not. But we need not resolve the exact contours of SOP2 because we have "inherent authority to reconsider [our] decisions," regardless of whether Patent Owner filed a request for rehearing. *Medtronic, Inc. v. Robert Bosch Healthcare Sys., Inc.*, 839 F.3d 1382, 1386 (Fed. Cir. 2016). Here, although we disagree with Sling's contention that *GoPro* is not binding, we find *GoPro's* reasoning persuasive, regardless of whether *GoPro* is binding in this case under SOP2, and apply it to reconsider our Decision to Institute. As *GoPro* explained, *Click-to-Call* held that § 315(b) is unambiguous, and, given that the statute is unambiguous, our resort, in our Decision to Institute, to the statute's heading—"Patent Owner's Action"—to interpret the statute was a clear legal error. *See GoPro*, Paper 38, at 10. For the reasons explained in detail in

GoPro, we agree with Patent Owner that our construction of § 315(b) to require that the complaint be served by the owner of the patent was incorrect. *See id.* at 9–24.

Sling further argues that the law-of-the-case doctrine bars our reconsideration. Sling Opp. 5. The law-of-the-case doctrine does not apply if "one of three 'exceptional circumstances' exists: 'the evidence on a subsequent trial was substantially different, controlling authority has since made a contrary decision of the law applicable to such issues, or the decision was clearly erroneous and would work a manifest injustice.'" *Smith Int'l, Inc. v. Hughes Tool Co.*, 759 F.2d 1572, 1576 (Fed. Cir. 1985). In addition to being subject to a later contrary decision of the law by a controlling authority, we determine that, as explained in *GoPro*, our reliance on the statute's heading was a clear error in view of *Click-to-Call's* determination that the statute was unambiguous. Moreover, we determine that allowing Sling to remain in this proceeding despite the statutory bar would be unjust. Thus, even if *GoPro* were not binding authority, given our decision was clearly erroneous and would work a manifest injustice, we disagree with Sling that the law-of-the-case doctrine bars reconsidering our Decision to Institute.

Sling also argues that, to the extent its decisions are binding, the Precedential Opinion Panel violates the Administrative Procedures Act. Sling Opp. 6–7. Although we disagree, we need not reach the question[3],

[3] As Sling acknowledges, the issue of whether the Precedential Opinion Panel violates the Administrative Procedures Act is currently pending before the Federal Circuit in *Facebook, Inc., v. Windy City Innovs., LLC*, No. 18-1400 (Fed. Cir. Aug. 7, 2019). *See* Sling Opp. 6–7. As such, we do not analyze the issue in detail.

because, as we explained above, regardless of whether *GoPro* is binding in this particular case, we find its reasoning persuasive that we committed legal error in our construction of § 315(b) in light of the Federal Circuit's decision in *Click-to-Call* that § 315(b)'s time bar is implicated once a party receives notice through official delivery of a complaint in a civil action, irrespective of subsequent events. *See Click-to-Call*, 899 F.3d at 1330. Thus, Sling's arguments that the Precedential Opinion Panel violates the APA are irrelevant in this case.[4]

Finally, Sling argues that it would be unfair to apply *GoPro* to Sling in this case. Sling Opp. 7–8.[5] We disagree. As we explained, § 315(b) bars Sling from seeking *inter partes* review. We have no discretion to maintain Sling as a Petitioner in this proceeding given the clear statutory command. Thus, the question of fairness does not persuade us otherwise.

Having determined that, under the proper construction of the statute, the service of a pleading alleging infringement, even where the serving party lacks standing to sue or the pleading is otherwise deficient, triggers the one-year time period for a petitioner to file a petition under 35 U.S.C. § 315(b), and having determined that Sling did not file a petition during this one year period, we grant Patent Owner's motion to terminate with respect to Sling.

B. ARRIS

Patent Owner also seeks to terminate this proceeding with respect to joined Petitioner ARRIS. Mot. 8–10; Reply 6–9. Patent Owner asserts that

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[4] Sling also argues that the Precedential Opinion Panel violates its due process rights under the Fifth Amendment to the U.S. Constitution. *See* Sling Opp. 7. However, this argument is not developed in any way, so we do not find it persuasive.

[5] The Sling petitioners refer to themselves collectively as "DISH."

if we vacate our earlier institution decision and terminate the IPR with respect to Sling, we should also terminate the proceeding with respect to ARRIS because "ARRIS was accused of infringing the '610 patent in the same complaint as the Sling petitioners," and "ARRIS should not be permitted to circumvent its time-bar by way of joinder, transmuting two time-barred petitions into one timely petition." Mot. 8, 10.

We agree with Patent Owner. ARRIS's petition was time barred, both at the time of Sling's petition and at the time of its own joinder petition. *See* Ex. 2014 (showing ARRIS was served with a complaint asserting infringement on June 12, 2017); Pet. 79 (Sling's Petition dated July 3, 2018), IPR2019-00746, Papers 2, 3 (ARRIS's petition and motion for joinder both dated February 27, 2019). We decline to permit ARRIS to circumvent the time bar by way of joinder. Although, as Petitioner ARRIS notes, the 1 year time bar under 35 U.S.C. § 315(b) does not apply to a request for joinder, under the proper construction of § 315(b), Sling's petition was time barred. We decline to excuse ARRIS's late Petition because had we denied Sling's Petition as time barred under 315(b)—as we should have under the reasoning in *GoPro*—there would have been no instituted proceeding to join.[6]

In addition to the arguments above, ARRIS asserts that Patent Owner waived its objection by failing to contest joinder. Joined Opp. 2–4. We

[6] In IPR2018-01342, we permitted a proceeding to continue with joined Petitioners Google and Comcast after terminating original petitioner Sling. *See* IPR2018-01342, Paper 45, 12. We did so because Google and Comcast had filed their petitions before the one-year deadline. *See id*. That is not the case here for ARRIS, which filed its petition after the one-year deadline for doing so.

decline, however, to fault Patent Owner for not raising the same time bar argument—this time opposing joinder—that we had just addressed and rejected in instituting Sling's Petition in this case. In addition, as Patent Owner notes, it "expressly reserved all rights concerning the time-bar issue, as stated in ARRIS's joinder motion itself." Reply 7 (citing IPR2019-00746 Paper 3, 9). Under these circumstances, we decline to hold that Patent Owner waived any objection to proceeding with *inter partes* review based on ARRIS's Petition.

III. CONCLUSION

In conclusion, we agree with Patent Owner that this proceeding should be terminated based on *GoPro, Inc. v. 360Heros, Inc.*, IPR2018-01754, Paper 38 (Aug. 23, 2019) (precedential).

IV. ORDER

It is ORDERED that Patent Owner's Motion to Terminate is *granted.*

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Paper No. 47
Date: February 27, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, and COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

REALTIME ADAPTIVE STREAMING, LLC,
Patent Owner.

IPR2018-01342[1]
Patent 8,934,535 B2

Before KEVIN W. CHERRY, GARTH D. BAER, and
NABEEL U. KHAN, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

JUDGMENT
FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

Determining All of the Challenged Claims Unpatentable

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[1] GOOGLE LLC, who filed a petition in IPR2019-00748, and COMCAST CABLE COMMUNICATIONS, LLC, who filed a petition in IPR2019-00760, were joined as petitioners to this proceeding. On January 17, 2020, we terminated the original Petitioner in IPR2018-01342 (*see* section I.A below), but for administrative convenience we kept IPR2018-01342 open to serve as the consolidated docket for IPR2019-00748 and IPR2019-00760. *See* Paper 45.

I. INTRODUCTION

A. Background

Google LLC ("Google") and Comcast Communications, LLC ("Comcast") (collectively, "Petitioner") filed Petitions (IPR2019-00748, Paper 1; IPR2019-00760, Paper 1) to institute an *inter partes* review of claims 1–6, 8–12, and 14 (the "challenged claims") of U.S. Patent No. 8,934,535 B2 (Exhibit 1001, "the '535 Patent"). Google and Comcast also filed timely motions for joinder to the already instituted proceeding in IPR2018-01342, which we granted. *See* Papers 24, 25.

The Petition in IPR2018-01342 was originally filed by Sling TV L.L.C., Sling Media L.L.C., DISH Network L.L.C., and DISH Technologies L.L.C. (collectively, "Sling") (Paper 2, "Petition" or "Pet.").[2] Sling's Petition requested that we institute an *inter partes* review of the challenged claims. Realtime Adaptive Streaming, LLC ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). We also allowed Sling and Patent Owner to file additional briefing on the issue of whether Sling's Petition was barred under 35 U.S.C. § 315(b). *See* Papers 7, 8.

[2] Google and Comcast have represented and we have found (*see* Paper 24, 3; Paper 25, 3) that the Petitions in IPR2019-00748 and IPR2019-00760 are substantially identical to the Petition in IPR2018-01342. Patent Owner acknowledges this. *See* Paper 30, 7. Although Sling is no long a party, we have maintained IPR2018-01342 to serve as the consolidated docket for IPR2019-00748 and IPR2019-00760. *See* Paper 45, 14. For sake of clarity and simplicity, we treat the Petition in IPR2018-01342 (Paper 2) as representative and all citations are to it, and the papers filed in IPR2018-01342, unless otherwise expressly noted.

The Petition asserts the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 9, 10, 14	102	Dvir[3]
1, 2, 9, 10, 14	103	Dvir
3–6, 8, 11, 12	103	Dvir and Ishii[4]

On January 31, 2019, we instituted an *inter partes* review of all claims challenged in the Petition and on all of the asserted grounds. *See* Paper 9, 26 ("Dec. on Inst.").

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 19, "PO Resp."), and Sling filed a Reply (Paper 26, "Reply"). Patent Owner also filed a Sur-Reply (Paper 34, "Sur-Reply").

Petitioner supports its arguments with a declaration by Scott T. Acton, Ph.D., dated July 3, 2018 (Ex. 1003), and a supplemental declaration by Dr. Acton, dated August 30, 2019 (Ex. 1031). Patent Owner supports its Response with a declaration by Kenneth A. Zeger, Ph.D., dated May 30, 2019 (Ex. 2010). Oral argument was held on December 5, 2019, a transcript of which is included in the record. Paper 43 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See*

[3] Dvir, U.S. Patent No. 6,557,001 B1, iss. Apr. 29, 2003, filed Nov. 12, 1999 (Exhibit 1004, "Dvir").
[4] Ishii, U.S. Patent No. 5,675,789, iss. Oct. 7, 1997 (Exhibit 1005, "Ishii").

35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–6, 8–12, and 14 of the '535 Patent are unpatentable. *See* 35 U.S.C. § 316(e).

B. Related Proceedings

The parties inform us that the '535 Patent is involved in the following litigations:

- *Realtime Data, LLC v. Echostar Corp.*, No. 6:17-cv-84 (E.D. Tex.)
- *Realtime Data LLC d/b/a IXO v. DISH Network Corp. et al.*, 6:17-cv-00421 (E.D. Tex.)
- *Realtime Adaptive Streaming, LLC v. Sling TV, LLC*, No. 1:17-cv-2097 (D. Colo.)
- *Realtime Adaptive Streaming, LLC v. Amazon.com, Inc.*, No. 6:17-cv-549 (E.D. Tex.)
- *Realtime Adaptive Streaming LLC v. EchoStar Technologies, LLC et al.*, No. 6:17-cv-00567 (E.D. Tex.).
- *Realtime Adaptive Streaming, LLC v. Hulu, LLC*, No. 2:17-cv-7611 (C.D. Cal.)
- *Realtime Adaptive Streaming, LLC v. Cisco Systems, Inc.*, No. 6:17-cv-591 (E.D. Tex.)
- *Realtime Adaptive Streaming, LLC v. Brightcove, Inc.*, No. 1:17-cv-1519 (D. Del.)
- *Realtime Adaptive Streaming, LLC v. Haivision Network Video, Inc.*, No. 1:17-cv-1520 (D. Del.)
- *Realtime Adaptive Streaming, LLC v. Polycom, Inc.*, No. 1:17-cv-2692 (D. Colo.)
- *Realtime Adaptive Streaming, LLC v. Netflix, Inc.*, No. 1:17-cv-1692 (D. Del.)

- *Realtime Adaptive Streaming, LLC v. Sony Elecs., Inc.*, No. 1:17-cv-1693 (D. Del.)
- *Realtime Adaptive Streaming, LLC v. Apple, Inc.*, No. 1:17-cv-2869 (D. Colo.)
- *Realtime Adaptive Streaming, LLC v. Adobe Sys. Inc.*, No. 1:18-cv-10355 (D. Mass.)
- *Realtime Adaptive Streaming, LLC v. Samsung Elec. Co., Ltd.*, No. 6:18-cv-00113 (E.D. Tex.)
- *Realtime Adaptive Streaming LLC v. Wowza Media Systems LLC*, No. 1:18-cv-00927 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. Google LLC et al*, No. 2:18-cv-03629 (C.D. Cal.)
- *Realtime Adaptive Streaming LLC v. Avaya Inc.*, No. 1:18-cv-01046 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. Broadcom Corporation et al.*, No. 1:18-cv-01048 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. LG Electronics Inc. et al*, No. 6:18-cv-00215 (E.D. Tex.)
- *Realtime Adaptive Streaming LLC v. Advanced Micro Devices, Inc.*, No. 1:18-cv-01173 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. Intel Corporation*, No. 1:18-cv-01175 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. Mitel Networks, Inc.*, No. 1:18-cv-01177 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. Charter Communications, Inc. et al*, No. 1:18-cv-01345 (D. Colo.)
- *Realtime Adaptive Streaming LLC v. Cox Communications, Inc.*, No. 8:18-cv-00942 (C.D. Cal.)
- *Realtime Adaptive Streaming LLC v. Comcast Cable Communications, LLC*, No. 1:18-cv-01446 (D. Colo.)

Pet. 4–6; Paper 3, 2–4.

Petitioner further informs us that the '535 Patent is involved in the following *inter partes* review proceedings:

- *Unified Patents Inc. v. Realtime Adaptive Streaming LLC*, IPR2018-00883
- *Hulu, LLC, Amazon.com, Inc., and Netflix, Inc. v. Realtime Adaptive Streaming LLC*, IPR2018-01169
- *Hulu, LLC, Amazon.com, Inc., and Netflix, Inc. v. Realtime Adaptive Streaming LLC*, IPR2018-01170
- *Sling TV L.L.C., Sling Media L.L.C., DISH Network L.L.C., and DISH Technologies L.L.C. v. Realtime Adaptive Streaming LLC*, IPR2018-01332

C. The '535 Patent

The '535 Patent relates generally to compressing and decompressing data based on an actual or expected throughput (bandwidth) of a system. Ex. 1001, 1:21–25. The '535 Patent explains that data compression algorithms can have varied performance characteristics. Ex. 1001, 1:32–35. For example, with a typical dictionary-based compression algorithm, such as Lempel-Ziv, the size of the dictionary can affect the performance of the algorithm. Ex. 1001, 1:35–38. A large dictionary may yield very good compression ratios, but may make the algorithm take a long time to execute. On the other hand, a smaller dictionary would yield a faster compression time but at the expense of lower compression ratio. Ex. 1001, 1:38–44. Thus, one challenge in employing data compression is selecting the appropriate algorithm from a variety of algorithms for a given application or system. The desired balance between speed and efficiency is an important factor in determining which algorithm to select for data compression. A system that provides dynamic modification of compression system

parameters to provide an optimal balance between speed and compression ratio is highly desirable. Ex. 1001, 1:56–60.

The '535 Patent describes two categories of compression algorithms—asymmetrical and symmetrical. An asymmetrical data compression algorithm is "one in which the execution time for the compression and decompression routines differ significantly." Ex. 1001, 9:64–66. Thus, in an asymmetrical algorithm, either the compression time is fast with the decompression time being slow, or vice versa. An example of an asymmetric algorithm is Lempel-Ziv. Ex. 1001, 10:2–4. A symmetric compression algorithm, on the other hand, is "one in which the execution time for the compression and the decompression routines are substantially similar. Examples of symmetrical algorithms include table-based compression schemes such as Huffman." Ex. 1001, 10:5–9. The total execution time of the compression and decompression portions of asymmetrical algorithms is typically higher than the total time for symmetrical algorithms. But an asymmetric algorithm typically achieves higher compression ratios. Ex. 1001, 10:10–14.

The invention described in the '535 Patent "is directed to a system and method for compressing and decompressing based on the actual or expected throughput (bandwidth) of a system employing data compression and a technique of optimizing based upon planned, expected, predicted, or actual usage." Ex. 1001, 7:51–55. A bandwidth sensitive data compression routine may be selected based on access profiles that enable the controller to determine a compression routine associated with a data type of the data to be compressed. Ex. 1001, 8:4–8. The access profiles comprise information that enables the controller to select a suitable compression algorithm that

provides the desired balance between speed and compression ratio. Ex. 1001, 8:8–13.

These access profiles may take into account the overall throughput of a system as one factor in deciding whether to use an asymmetric or symmetric algorithm. Ex. 1001, 11:25–29. Another factor the access profile may track is the type of data to be processed. Ex. 1001, 11:29–31. For example, different data types (the type may be determined by a file extension of the data) may be associated with different compression algorithms. Ex. 1001, 11:35–40.

The '535 Patent illustrates this concept with three categories of access profiles. In a first category, the access profile of a particular data type may specify that the data may be decompressed significantly more times than it is compressed. This is typical with operating systems, applications, and websites. Ex. 1001, 12:1–12. In such a situation it may be suitable to use an asymmetric algorithm that provides a slow compression routine and a fast decompression routine. Ex. 1001, 12:14–20. Thus, the compression ratio achieved by using an asymmetric algorithm with slow compression will be higher than if a symmetric algorithm was used. Ex. 1001, 12:20–24.

A second category is one in which the data would be compressed significantly more times than decompressed. Ex. 1001, 12:25–27. This is typical for automatically updating an inventory database. Here, an asymmetric algorithm with a fast compression routine and a slow decompression routine would be most appropriate. Ex. 1001, 12:27–35.

A third category is one in which the data is accessed with a similar number of reads and writes and, thus, would be compressed and decompressed approximately the same number of times. Ex. 1001, 12:36–

39. This is typical of most user-generated data such as documents and spreadsheets. Ex. 1001, 12:40–41. In this case, a symmetric algorithm that provides relatively fast compression and decompression would be preferable. Ex. 1001, 12:41–43.

In this way, the '535 Patent describes a system that automatically selects an appropriate compression algorithm to optimize system throughput based on the type of data being installed or stored. Ex. 1001, 14:27–39.

D. Illustrative Claim

Of the challenged claims, claims 1 and 14 are independent. Claims 2–6 and 8–12 depend directly or indirectly from claim 1.

Claim 1, reproduced below, is illustrative:

> 1. A method, comprising:
>
> determining a parameter or attribute of at least a portion of a data block having audio or video data;
>
> selecting an access profile from among a plurality of access profiles based upon the determined parameter or attribute; and
>
> compressing the at least the portion of the data block with one or more compressors using asymmetric data compression and information from the selected access profile to create one or more compressed data blocks, the information being indicative of the one or more compressors to apply to the at least the portion of the data block.

II. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner proposes that a person of ordinary skill "would have had a bachelor's degree in electrical engineering, computer engineering, computer science, or the equivalent and 2–3 years of work experience with data compression, storage, retrieval, processing, and transmission, or the

equivalent." Pet. 15 (citing Ex. 1003 ¶¶ 34–39). For purposes of this proceeding, Patent Owner adopts Petitioner's proposed level of skill in the art. PO Resp. 8. We agree with the parties that this represents the appropriate level of skill in the art, and we adopt Petitioner's proposed level of ordinary skill.

III. CLAIM CONSTRUCTION

In an *inter partes* review based on a petition filed prior to November 13, 2018, claim terms in an unexpired patent are construed according to their broadest reasonable interpretation in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2017); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under that standard, there is a presumption that claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art in the context of the specification. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Nonetheless, if the specification "reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor's lexicography governs." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). Another exception to the general rule that claims are given their ordinary and customary meaning is "when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1313 (Fed. Cir. 2013) (quoting *Thorner v. Sony Computer Entm't Am., LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)).

Because IPR2018-01342 was filed before November 13, 2018, the recent amendment to this rule did not apply. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective Nov. 13, 2018) (codified at 37 C.F.R. pt. 42). However, as we discussed above, we terminated Sling and are proceeding on IPR2019-00748 and IPR2019-00760, which were filed after November 13, 2018. Under the new claim construction standard, "[i]n an *inter partes* review proceeding, a claim of a patent . . . 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) (2019). Specifically, under the new standard, we apply the principles set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). Under that 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 Phillips*, 415 F.3d at 1312–13. Additionally, only terms that are in controversy need to be expressly construed, and these need be construed only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Because we are proceeding on IPR2019-00748 and IPR2019-00760, which were filed after November 13, 2018, we apply the standard set forth in *Phillips*. We note, however, that we would reach the same results under either standard.

1. "Data Block"

Petitioner asks that we construe "data block" as "a single unit of data which may range in size from individual bits through complete files or collection of multiple files." Pet. 16–17. Patent Owner agrees with this construction. PO Resp. 9. For purposes of this decision, we agree and adopt Petitioner's construction of "data block."

2. "Parameter"

The parties dispute the correct construction of the term "parameter," which is found in the independent claims. Petitioner contends that the term should be construed as "any recognizable data token or descriptor." Pet. 17–18. Patent Owner argues that Petitioner is incorrect and that a person of ordinary skill in the art "would readily understand 'parameter' in the context of the '535 [P]atent and understand that no construction is necessary." PO Resp. 10. We determine that an explicit construction of the term is not necessary for determining whether Petitioner has demonstrated that the challenged claims are unpatentable.

3. asymmetric compressors / "asymmetric data compression"

Petitioner argues that the terms asymmetric compressor and asymmetric data compression refer to "an algorithm where compression of data and decompression of that compressed data take different amounts of time." Pet. 19. Patent Owner, relying on what it contends is a definition of the terms, argues that the terms should be construed to mean a "compression algorithm in which the execution time for compression and decompression differ significantly." PO Resp. 12.

We determine that an explicit construction of the terms is not necessary for determining whether Petitioner has demonstrated that the challenged claims are unpatentable.

4. access profile

Petitioner asks the Board to construe "access profile" as "information that enables a controller to determine a compression routine that is associated with a data type of the data to be compressed." Pet. 19–20. Patent Owner proposes construing the term to mean: "information that enables the controller to select a suitable compression algorithm that provides a desired balance between execution speed (rate of compression) and efficiency (compression ratio)." PO Resp. 12–13. We also asked the parties to address the construction for "access profile" proposed by the petitioner in IPR2018-01169, Netflix, Inc. *See* Paper 17, 4. Netflix argued that the term should be construed as "information regarding the number of reads or writes." PO Resp. 18.

Both parties take their constructions from the same paragraph of the Specification. In particular, the Specification states:

> In another aspect, a system for providing bandwidth sensitive data compression comprises a plurality of access profiles, operatively accessible by the controller that enables the controller to determine a compression routine that is associated with a data type of the data to be compressed. The access profiles comprise information that enables the controller to select a suitable compression algorithm that provides a desired balance between execution

> speed (rate of compression) and efficiency (compression ratio).

Ex. 1001, 8:4–12.

Citing additional portions of the Specification, Petitioner argues that an access profile "is information that associates a compression routine with a data type." Pet. 19 (citing Ex. 1001, 13:1–4, 11:25–40). Patent Owner responds that its construction (also taken from the '535 Patent) is consistent with how the Specification uses "access profiles." PO Resp. 13. Patent Owner contends that the system may select an appropriate compression algorithm to optimize system throughput based on the data being compressed and that "[b]y allowing the controller to select a suitable compression algorithm that provides a desired balance between compression speed and efficiency, access profiles allow the system to optimize system throughput." *Id.* (citing Ex. 1001, 7:51–55, 14:27–39). Patent Owner submits that its construction is consistent with the claim language and the examples in the Specification. *Id.* at 13–16 (citing Ex. 1001, 11:19–12:67); Sur-Reply 2. Patent Owner objects to Petitioner's construction for improperly importing limitations from the Specification into the claims. *Id.* at 16. Patent Owner argues that the Specification does not define "access profile" in terms of "data type" and there is no definition or disclaimer in the Specification or prosecution history that supports Petitioner's construction. *Id.* In particular, Patent Owner objects to the inclusion of "data type" as improper. *Id.* at 16–17. Patent Owner also objects to the claim construction proposed by the petitioner in IPR2018-01169—"information regarding the number or frequency of reads or writes"—as improperly narrow. *Id.* at 18.

Patent Owner argues that information about reads and writes alone is insufficient to select a suitable compressor. *Id.* at 19–20.

As an initial matter, we agree with both parties that Netflix's proposed construction from IPR2018-01169 is too narrow. As we explained in detail in our Final Written Decision in IPR2018-01169, the term "access profile" is broad enough to include information regarding reads or writes, but not limited to that. IPR2018-01169, Paper 45, 12–13 (Final Written Decision). Thus, for the reasons explained in IPR2018-01169, we decline to adopt Netflix's proposed construction for purposes of this proceeding. *See id.* at 14.

We also agree with Patent Owner that Petitioner's construction is too narrow in that it seems to limit "access profile" to "data type," when there are examples in the Specification using access frequency. *See* Ex. 1001, 11:25–12:67. The specification of the '535 Patent provides several examples of access profiles that use the number and/or frequency of reads or writes to enable controller 11 to select a suitable compression algorithm based on data type. *See* Ex. 1001, 11:29–12:50. Yet, we agree with Petitioner that "data type" can be information included in an "access profile." The Specification includes access profiles based on data type. *See id.* at 11:29–44; 14:37–49 ("Alternatively, the system can detect the type of data being installed or stored to disk (via file extension, etc.) and automatically select an appropriate algorithm using the Access Profile information as described above."). Patent Owner's arguments that the references to "data type" are only in the context of "data profiles," not "access profiles," is not persuasive because the Specification indicates that "data profiles" are a type of access profile and should be included in the

broader category. *See* Ex. 1001, 11:32–35 ("[D]ata profiles 15 comprise information regarding predetermined access profiles of different data sets . . . ."); *see also id.* at 11:35–49 (using "access profile" and "data profile" interchangeably). Therefore, although we decline to limit the claim construction to data type or number of reads or writes, we note that data type and number of reads or writes are examples of such "access profile" information. Similarly, the Specification does not indicate that "access profiles" must be correlated with a "balance between execution speed (rate of compression) and efficiency (compression ratio)" as proposed by Patent Owner. Although the '535 Patent states "[t]he access profiles comprise information that enables the controller to select a suitable compression algorithm that provides a desired balance between execution speed (rate of compression) and efficiency (compression ratio)," the Specification also states that the "plurality of access profiles" is "operatively accessible by the controller that enables the controller to determine a compression routine that is associated with a data type of the data to be compressed." Ex. 1001, 8:4–13. Thus, in context, the statement Patent Owner relies upon is merely descriptive of the intended use of the access profiles, rather than a definition. *See* IPR2018-01169, Paper 45, 13.

Therefore, based on our reading of the '535 Patent and its prosecution history, we determine that "access profile" encompasses "information, such as the number or frequency of reads or writes or data type, that enables selection of a suitable compression algorithm."[5]

[5] After the oral hearing and in response to our questions about whether there were any other constructions we should be aware of (*see* Tr. 18:6–19:7), Patent Owner submitted a paper apprising us of Judge Wu's construction in *Realtime Adaptive Streaming LLC v. Google LLC*, CV 2:18-3629-GW(JCx))

IV. ANALYSIS

Petitioner contends Dvir anticipates claims 1, 2, 9, 10, and 14, and also would have rendered the subject matter of claims 1, 2, 9, 10, and 14 obvious to one of ordinary skill in the art at the time of the invention. Pet. 27–42. Petitioner further contends that the combination of Dvir and Ishii would have rendered the subject matter of claims 3–6, 8, 11, and 12 obvious to one of ordinary skill in the art at the time of the invention. *Id.* at 42–65.

Petitioner bears the burden of establishing the unpatentability of any claim by a preponderance of the evidence. 35 U.S.C. § 316 (e); 37 C.F.R. § 42.1(d). This burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). With that burden in mind, we turn now to Petitioner's challenges.

(C.D. Cal.). *See* Paper 42. Although this construction had issued five months earlier and before Patent Owner submitted its Sur-Reply, Patent Owner offered to submit additional briefing on whether to adopt the district court's construction. We decline to allow Patent Owner an opportunity to re-open the claim construction briefing over something it was aware of for months and submitted only after our prompting. *See* Tr. 18:6–19:7. Moreover, Patent Owner has repeatedly opposed the adoption of a construction related to number of reads/writes before the Board. *See* PO Resp. 18–20. Because no party advocated for it, and we do not agree that "access profile" should be limited to number of reads/writes, we decline to adopt Judge Wu's construction for purposes of this proceeding. *See* Paper 42, 1–2. Although we generally agree with Judge Wu's point that the construction should reflect not only what an "access profile" is intended to do, *see* Ex. 2019, 12, but also what it contains, we believe that limiting the construction to only read and writes is too narrow.

A. Overview of Dvir

Dvir is entitled "Method for Enhancing Video Compression Through Automatic Data Analysis and Profile Selection." Ex. 1004, code [54]. Dvir discloses a system and method "for rapid video data compression and transmission for a wireless remote monitor." *Id.* at Abstract. Dvir's method allows the compression method to be adjusted according to the type of software application which generated the video data, and according to the characteristics of the data itself. *Id.* Dvir discloses that the type and profile of video data compression is selected by a profile manager, which detects the characteristics of the video data to determine the character of the data, and then selects the video data compression method and profile according to the video data character. *Id.*

Dvir matches the compression algorithm to a data type by performing the following steps:

(a) providing a plurality of different multimedia data compression procedures, each of the compression procedures being associated with a profile of characteristics of the multimedia data;

(b) receiving the multimedia data to be compressed to form received data;

(c) determining at least one characteristic of the received data;

(d) selecting a profile according to the at least one characteristic; and

(e) compressing the received data according to a compression procedure associated with the profile.

Ex. 1004, 2:64–3:21.

Dvir shows this compression selection technique in Figure 1b, reproduced below.

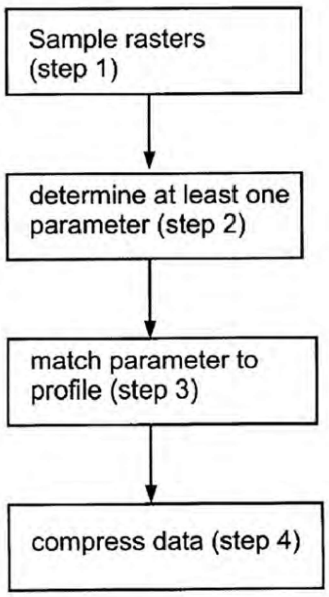

Fig. 1b

Figure 1b shows a flow chart of the compression selection technique of Dvir. *Id.* at 5:6–11.

Dvir explains that for each received data "sample," Dvir's compression system determines a "parameter" or "characteristic" of the data such as "a number of unique colors in the screen, a presence of static dark thin rows of pixels or large static blocks, and a level of motion in the screen between one frame and the next frame." *Id.* at 5:36–42; *see also id.* at 4:66–5:11. A "compression profile manager" then "selects a suitable compression profile for compressing the video data, according to the characteristics of the display data." *Id.* at 5:8–10; *see also id.* at 5:43–5:51. Dvir's selected compression algorithms include an asymmetric compression algorithm. For example, Dvir states that "the actual process of compression is performed by an MPEG (Motion Picture Expert Group) encoder . . . or other type of compression algorithm." Ex. 1004, 5:14–24; *see also id.* at Fig. 3a.

Finally, Dvir uses the "compression profile" to "select the particular type of video compression method for compressing the display data."

Ex. 1004, 4:66–5:3; *see also id.* at 6:43–45. Dvir, therefore, automatically creates a specifically tailored "compression procedure" for each set of multimedia data. *Id.* at 2:31–49; Ex. 1003 ¶¶ 67–72.

B. Overview of Ishii

Ishii is entitled "File Compression Processor Monitoring Current Available Capacity and Threshold Value" and relates to a file compression processor that records image and text data to a recording media after data compression. Ex. 1005, code [54], 1:10–15. Ishii's file compression processor comprises a file status monitor that keeps track of the current available capacity on the file unit and an upper limit threshold value of available capacity that is always to be ensured. *Id.* at Abstract, 1:56–60. When the current available file capacity is greater than the threshold value, files are not compressed and, in some embodiments, certain files with high access frequency are decompressed. *Id.* at 6:65–7:3. When the current available file capacity is below the threshold, the system searches for files with a lower access frequency and compresses them. An appropriate data compression method is selected based on access frequency and file type. *Id.* at 5:43–50, 5:60–65. For example, a compression method with shorter compression and decompression times is selected for files that are accessed frequently, and a compression method with a higher compression ratio (and typically longer compression times) is selected for files with lower access frequency. *Id.* at 6:12–17.

C. Anticipation by Dvir

A claim is anticipated under 35 U.S.C. § 102 "only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union*

Oil Co. of Cal., 814 F.2d 628, 631 (Fed. Cir. 1987). However, this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

Claim 1 recites "determining a parameter or attribute of at least a portion of a data block having audio or video data." Claim 14 recites a similar limitation. Petitioner argues Dvir discloses this limitation through its disclosure of a compression profile manager that receives multimedia data—that includes video stream data or audio stream data, or both, which is "sampled for analysis" in "groups of rasters" that are, for example, "block[s] of 8x8 pixels." Pet. 27–28 (citing Ex. 1004, 5:22–35; Ex. 1003 ¶¶ 86–95). In addition, Dvir discloses that the compression profile manager "receive[s] pertinent information concerning the type" of data being processed. *Id.* at 28–30 (citing Ex. 1004, 4:37–5:14, 5:29–52; Ex. 1003 ¶¶ 86–95). Also, Dvir discloses determining "at least one parameter," such as "a number of unique colors in the screen, a presence of static dark thin rows of pixels or large static blocks, and a level of motion in the screen between one frame and the next frame" for each sample and matching "the plurality of parameters . . . to a particular compression profile." *Id.* at 29–30 (citing Ex. 1004, 5:29–52; Ex. 1003 ¶¶ 86–95).

Claim 1 further recites "selecting an access profile from among a plurality of access profiles based upon the determined parameter or attribute." Claim 14 recites a similar limitation. Petitioner argues Dvir discloses this limitation. Pet. 30–32. Petitioner contends that, after determining the parameter of the multimedia data block, Dvir discloses "select[ing] a particular compression profile according to the type" of the data. *Id.* at 30 (citing Ex. 1004, 5:22–34). For example, Petitioner notes that

Dvir samples "groups of rasters" of data to determine "at least one parameter . . . for each sample," and matches the determined parameter(s) to "a particular compression profile, which is then selected by compression profile manager." *Id.* (citing Ex. 1004, 5:29–52). Petitioner argues that "[t]he compression profile manager selects 'a suitable compression profile for compressing the video [or audio] data, according to the characteristics of the [received video or audio] data.'" *Id.* (quoting Ex. 1004, 4:67–5:22) (alterations in original). Moreover, Petitioner submits that Dvir selects the compression profile from among a plurality of compression profiles. *Id.* (citing Ex. 1003 ¶¶ 96–104). Petitioner asserts that Dvir explains that "compression profile manager 7 has a plurality of compression profiles," and that the compression profile manager selects "a compression profile from [the] plurality of such profiles" based on characteristics of the data. *Id.* (citing Ex. 1004, 5:3–13; Ex. 1003 ¶¶ 96–104).

Claim 1 further recites "compressing the at least the portion of the data block with one or more compressors using asymmetric data compression and information from the selected access profile to create one or more compressed data blocks, the information being indicative of the one or more compressors to apply to the at least the portion of the data block." Claim 14 recites a similar limitation. Petitioner argues that once Dvir's compression profile manager selects the "proper compression profile" for the data, the "compression profile is set to determine the particular . . . compression method for compressing the . . . data." Pet. 32 (citing Ex. 1004, 5:14–24; Ex. 1003 ¶¶ 105–117). Petitioner asserts that Dvir's "compression methods" disclose the claimed "compressors," because Dvir states that "the actual process of compression is performed by an

MPEG (Motion Picture Expert Group) encoder . . . or other type of compression algorithm." *Id.* (citing Ex. 1004, 6:43–45; Ex. 1003 ¶¶ 105–117). Further, Petitioner contends that Dvir discloses the use of asymmetric compressors, such as MPEG. *Id.* at 32–33 (citing Ex. 1003 ¶¶ 54–72, 105–117). Petitioner also contends that Dvir discloses that the compressing "create[s] one or more compressed data blocks." *Id.* at 34 (citing Ex. 1004, Fig. 1b, 2:64–3:21, 6:43–45, 4:66–6:67; Ex. 1003 ¶¶ 105–117).

Claim 14 differs from claim 1 in that instead of explicitly requiring the use of "asymmetric data compression," claim 14 recites "wherein the one or more compressors utilize at least one slow compress encoder and at least one fast decompress decoder." Claim 14 further recites:

> wherein compressing the at least the portion of the data block with the at least one slow compress encoder takes more time than decompressing the at least the portion of the data block with the at least one fast decompress decoder if the time were measured with the at least one slow compress encoder and the at least one fast decompress decoder running individually on a common host system.

Petitioner argues that Dvir discloses these limitations of claim 14 largely for the same reasons it discloses the "asymmetric data compression" limitations of claim 1. Namely, Dvir teaches the use of MPEG, which, according to Petitioner, is "an asymmetric compression algorithm where the slower encoding process is more complex and time-consuming than the comparatively faster decoding process." Pet. 39–40 (citing Ex. 1003 ¶¶ 147–152).

Patent Owner raises several arguments why Dvir does not anticipate the independent claims. PO Resp. 24–39.

Patent Owner contends that Petitioner relies on at least two different embodiments for its Dvir-based anticipation theory. PO Resp. 25–26. We disagree. As Petitioner explains, what Dvir characterizes as separate embodiments all use the same method of selecting compressors. *See* Ex. 1031 ¶¶ 7–12; Reply 7–11. Although these "embodiments" may use different hardware, they are all practicing the same method. Ex. 1031 ¶¶ 7–12. It is this method that Petitioner relies upon for anticipation. Reply 7–11. The parts that differ between the "embodiments" are irrelevant to whether the claimed method is anticipated or not. *See* Ex. 1031 ¶¶ 13–18. Thus, we do not agree with Patent Owner that Petitioner's anticipation theory is improper.[6]

Patent Owner contends that Petitioner fails to account for the claimed "data block." PO Resp. 29–31. Patent Owner asserts that Petitioner relies on Dvir's "samples" or "group of rasters" as disclosing the claimed "data block." *Id.* at 29 (citing Ex. 2010 ¶¶ 102–109). Patent Owner argues that Dvir's "group of rasters" is a plurality of 8x8 blocks of pixels, not a "single unit of data" as required by the agreed upon construction. *Id.* at 29–30 (citing Ex. 2010 ¶¶ 104–106).

Petitioner responds that Dr. Acton's contentions are not as narrow as Patent Owner contends. Reply 11–14. We agree with Petitioner that Dvir

[6] We disagree with Patent Owner's contention that this is an improper new argument by Petitioner. Sur-Reply 7–8. Instead, we find that it is directly responsive to Patent Owner's arguments and does not change Petitioner's mapping of Dvir to the claims. Thus, we will consider it. *See Anacor Pharm., Inc. v. Iancu*, 889 F.3d 1372, 1380–81 (Fed. Cir. 2018) ("[T]he petitioner in an inter partes review proceeding may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner . . . .").

discloses the claimed "data block." Dr. Zeger contends that the "group of rasters" cannot be a "single unit of data," as the agreed upon construction requires, because "such 8x8 blocks in Dvir could be from very distant locations from each other and have no common characteristics or functionality." Ex. 2010 ¶ 106. Dr. Zeger also opines that "[t]wo 8x8 blocks might not even be in the same frame of video." *Id.* However, as Dr. Acton explains, even if Dr. Zeger is correct that to be a "data block" the data must be from a common location and have "common characteristics and functionality." Dvir discloses this. Ex. 1031 ¶¶ 27–31. In particular, Dvir provides examples of parameters that it determines, including "number of unique colors in the screen, a presence of static dark thin rows of pixels or large static blocks, and a level of motion in the screen between one frame and the next frame." *Id.* ¶ 28 (quoting Ex. 1004, 5:23–41). As Dr. Acton persuasively explains, to determine the number of colors, the presence of static thin rows, or the presence of large static blocks in the frame (referred to by Dvir as the "screen"), a person of ordinary skill in the art would sample data from a single frame that "would in most instances be proximately stored, and have similar characteristics and functionality (e.g., the sampled pixels would all be of a same frame of a same video file and specify information for pixels of the frame)." *Id.* ¶ 29. In particular, Dr. Acton notes that Dvir "clarifies that 'a number of unique colors in the screen' means determining a number of unique colors in the 'frame.'" *Id.* ¶ 30 (citing Ex. 1004, 5:45–46). We find persuasive Dr. Acton's reasoning that

> Certainly, a single frame of a video stream is a single unit of data, which may range in size from individual bits through complete files or collection of multiple files. A single frame also includes

> a contiguous set of pixels. And it follows that sampling 8x8 pixel blocks in the frame would include sampling the entire frame, which is a set of contiguous pixels.

Id. We also find persuasive Dr. Acton's testimony that another example Dvir discloses that would meet Dr. Zeger's narrower understanding of "data block" would be "level of motion in the screen between one frame and the next frame." *Id.* We give substantial weight to Dr. Acton's testimony that the "sample" of 8x8 pixel blocks would be contiguous and span two adjacent frames. *Id.* Thus, we agree with Petitioner and Dr. Acton that Dvir discloses the claimed "data block." Ex. 1003 ¶¶ 86–95; Ex. 1031 ¶¶ 27–31.

We note that it does not matter, as Dr. Zeger speculates (*see* Ex. 2010 ¶¶ 106–108), that there might be instances where Dvir's "group of rasters" would not meet his understanding of a "data block." Here, Petitioner has shown that there are instances in Dvir where the "group of rasters" would be a data block as we found above. That is sufficient. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 843 F.3d 1315, 1336 (Fed. Cir. 2016); *see also Hewlett–Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1326 (Fed. Cir. 2003) ("Just as 'an accused product that sometimes, but not always, embodies a claimed method nonetheless infringes,' . . . a prior art product that sometimes, but not always, embodies a claimed method nonetheless teaches that aspect of the invention." (quoting *Bell Commc'ns Research, Inc. v. Vitalink Commc'ns Corp.*, 55 F.3d 615, 622–623 (Fed. Cir. 1995))).

Patent Owner asserts that Petitioner fails to account for the limitation "determining a parameter or attribute of at least a portion of a data block." PO Resp. 32–34. Patent Owner's arguments are essentially that because Dvir's sample is not a "data block," Dvir does not disclose determining a

parameter of a "data block." *See id.* However, we determined above that Dvir's sample, which is relied upon by Petitioner as disclosing the claimed "data block," meets the "data block" limitation—at least in the two instances disclosed in Dvir identified by Dr. Acton (*see* Ex. 1031 ¶ 30). Thus, Patent Owner's arguments are not persuasive for the reasons provided above, and we determine that Dvir does disclose "determining a parameter or attribute of at least a portion of a data block." Ex. 1003 ¶¶ 86–95; Ex. 1031 ¶¶ 27–31.

Patent Owner also argues Petitioner failed to meet its burden under Patent Owner's and Netflix's construction for "access profile." PO Resp. 34–37. However, we did not adopt either of those constructions. Our construction, which is slightly broader than Petitioner's proposed construction, encompasses Petitioner's proposed construction. *Compare supra* at 16 *with* Pet. 20. Patent Owner's arguments regarding why Dvir does not disclose an "access profile" rest on a claim construction that we rejected. *See* PO Resp. 34–37. Thus, we find that Petitioner has met its burden of showing that Dvir describes the claimed access profiles. *See* Ex. 1003 ¶¶ 96–104.

We also determine that Petitioner has shown sufficiently that Dvir describes an asymmetric compressor, even under Patent Owner's construction. Patent Owner does not contend that Dvir fails to disclose this limitation, but merely that Petitioner should be prevented from introducing evidence that Dvir meets this limitation under Patent Owner's construction. PO Resp. 37–39. We disagree with Patent Owner that Petitioner cannot respond to Patent Owner's construction. Petitioner fairly articulated its proposed construction in the Petition. Patent Owner did not object or argue

before institution that this construction was incorrect. Patent Owner raised its construction in its Patent Owner's Response. Thus, Petitioner may fairly respond to that construction. Dr. Acton has offered unrebutted, well-grounded testimony that Dvir's compressors would meet this limitation under Patent Owner's construction. We find this testimony persuasive and give it significant weight. *See* Ex. 1031 ¶¶ 58–73. Thus, we find that Petitioner has shown that Dvir discloses the claimed asymmetric compressors.

Accordingly, we conclude that Petitioner has shown by a preponderance of the evidence that Dvir anticipates claims 1 and 14.

Petitioner also contends that Dvir anticipates claims 2, 9, and 10. We note that Patent Owner has not presented any arguments addressing the limitations of these dependent claims other than the arguments regarding the independent claims discussed above. We have also reviewed Petitioner's contentions that Dvir anticipates claims 2, 9, and 10, and determine that Petitioner has shown by a preponderance of evidence that Dvir anticipates claims 2, 9, and 10. *See* Pet. 35–38.

In sum, we determine that Petitioner has shown by a preponderance of the evidence that Dvir anticipates claims 1, 2, 9, 10, and 14.

D. Obviousness

The U.S. Supreme Court set forth the framework for applying the statutory language of 35 U.S.C. § 103 in *Graham v. John Deere Co.*, 383 U.S. 1 (1966):

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness

> or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

Id. at 17–18.[7]

As explained by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007):

> Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

Id. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")).

"Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact." *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016). "[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan 'would have had a reasonable expectation of success from doing so.'" *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine*

[7] Patent Owner does not submit any evidence of secondary considerations.

Hydrochloride Extended-Release Capsule Patent Litig., 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

1. Claims 1, 2, 9, 10, and 14

Petitioner offers a single reference obviousness ground based on Dvir for claims 1, 2, 9, 10, and 14. Pet. 40–42. Petitioner asserts that "to the extent that Dvir does not disclose asymmetric data compression as recited by elements [1.2] and [10.1] [14.3] or compression using 'at least one slow encoder' and 'at least one fast decoder' as recited by element [14.3], a POSITA would have found it obvious to select an asymmetric data compression algorithm." *Id.* at 40–42. However, as we discussed above, we determined that Petitioner has shown sufficiently that Dvir does disclose asymmetric data compression. Thus, we do not reach this alternative ground asserting claims 1, 2, 9, 10, and 14 would have been obvious over Dvir alone.

2. Claims 3–6, 8, 11, and 12

Petitioner argues that claims 3–6, 8, 11, and 12 are unpatentable as obvious over the combination of Dvir and Ishii. Pet. 42–65.

a. Claim Limitations

Claims 3–6, 8, 11, and 12 are all dependent claims. Claim 3 depends from claim 2, and claim 2 depends from claim 1. Petitioner contends that Dvir discloses the limitations of claims 1 and 2 as we found above with respect to anticipation. *See* Pet. 52. Petitioner relies on the combination of Dvir and Ishii to disclose the remaining limitation of claim 3—"wherein the plurality of data blocks comprises: one or more files." *See id.* at 52–54. Petitioner notes that Dvir's video and audio data would have been routinely stored as files, and Ishii discloses operating a compressor on data blocks

consisting of files. *Id.* at 52–53. Petitioner proposes incorporating "Ishii's teaching of a file compression processor that compresses files on a file unit into Dvir's system." *Id.* at 54. Patent Owner argues that Petitioner fails to account for the claimed "data block," because in its analysis of claim 1, Petitioner relies on the "group of rasters," but with respect to claim 3, Petitioner never explains how the "group of rasters" comprises "one or more files" as required by claim 3. PO Resp. 52–53.

We disagree with Patent Owner and find that Petitioner has adequately accounted for the "data block" limitation in claim 3. To begin with, Petitioner is not required to actually bodily incorporate Ishii's data file into Dvir. *See Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016). "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference,. . . but rather whether a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention." *Id.* (citations omitted). Here, as we found above, Dvir teaches determining a parameter of at least a portion of a data block. *See supra* at 24–26. There is no dispute that Ishii operates on a file basis. *See* Ex. 1005, 1:49–55; Ex. 1003 ¶¶ 177–179. Thus, we find that Petitioner has shown that the combined teachings of Dvir and Ishii would account for a "data block" that comprises one or more files, as claimed in claim 3. *See* Ex. 1003 ¶¶ 173–179; Ex. 1031 ¶¶ 92–94.

Claim 4 depends from claim 1, and additionally recites "wherein the one or more compressed data blocks comprise: one or more files." Petitioner relies on its analysis of claim 1 with respect to anticipation, and relies on Ishii to teach a data block comprising a file, as discussed with

respect to claim 3. *See* Pet. 55–56. Patent Owner argues that Petitioner only points to input data, not the compressed data, as comprising one or more files. PO Resp. 53. Thus, Patent Owner contends that Petitioner fails to account for this limitation. We find that Petitioner has shown by a preponderance of the evidence that the combination of Dvir and Ishii accounts for the limitations of claim 4. As Petitioner explains, Dvir teaches applying its methods to an entire DVD movie and compressing it accordingly. *See* Ex. 1003 ¶¶ 182–185. As Petitioner explains, a person of ordinary skill "would have understood that Ishii's compression system (which compresses files based on characteristics of the files, e.g., their access frequency) produces compressed files." Pet. 55–56 (citing Ex. 1003 ¶¶ 183, 184). Moreover, Petitioner explains that "a POSITA would understand that the compressed data blocks would comprise one or more files." *Id.* at 56. We find this argument and the testimony from Dr. Acton that supports it persuasive. *See* Ex. 1003 ¶¶ 183, 184; Ex. 1031 ¶¶ 93, 94. Thus, we find that Petitioner has accounted for the limitations of claim 4.

Claim 11 depends from claim 10 and further recites that "wherein the plurality of data blocks or the one or more compressed data blocks comprise: at least a portion of a file." Petitioner relies on its analysis of claims 1 and 10 with respect to anticipation and relies on Ishii to teach a data block comprising a file, as discussed with respect to claim 3. *See* Pet. 55–56. Patent Owner raises the same argument that we rejected with respect to claim 4. *See* PO Resp. 54. For the reasons discussed above, we do not find this argument persuasive. Accordingly, we find that Petitioner has also accounted for the limitations of claim 11.

Claims 5, 6, 8, and 12 depend directly from claim 1. Petitioner identifies where the combination of Dvir and Ishii teaches or suggests the limitations of these dependent claims by providing an analysis of each limitation and a comparison of the limitations to the teachings of Dvir and Ishii. *See* Pet. 56–62, 63–65. Patent Owner does not argue that the combination of Dvir and Ishii fails to disclose the additional limitations recited by claims 5, 6, 8, and 12. Accordingly, Patent Owner has waived any argument directed to those limitations. *See* Paper 10, 5 ("Patent Owner is cautioned that any arguments for patentability not raised in the response may be deemed waived."). We have reviewed Petitioner's evidence and argument. *See* Pet. 56–62, 63–65. We agree with it and adopt it as our own. For the reasons provided therein, Petitioner demonstrates that the combination of Dvir and Ishii accounts for the limitations of claims 5, 6, 8, and 12.

b. Motivation to Combine

A motivation to combine may be found "explicitly or implicitly in market forces; design incentives; the 'interrelated teachings of multiple patents'; 'any need or problem known in the field of endeavor at the time of invention and addressed by the patent'; and the background knowledge, creativity, and common sense of the person of ordinary skill." *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (quoting *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013)).

Petitioner argues that a person of ordinary skill in the art "interested in optimizing space savings and end-user latency, would have been motivated to combine Ishii's adaptive compression, storage, and transmission system teachings with Dvir's compression and transmission system to achieve

reduced latency for a user." Pet. 43 (citing Ex. 1004, 1:30–33; Ex. 1003 ¶¶ 161–172). Petitioner submits that Dvir addresses the problem of displaying multimedia content at a monitor that is remote from a user device that accesses and processes multimedia content over communication channels with limited bandwidth, such as a user's local home network. *Id.* (citing Ex. 1004, 2:3–11, 2:50–53). Petitioner contends that while Dvir addresses this problem in the context of local home networks, a person having ordinary skill in the art readily would have understood that Dvir's compression and transmission techniques could be applied to networks in general, including wide area networks (WANs), and thus, would have understood that Dvir's techniques could have been applied to Ishii's database service. *Id.* at 44. Noting the limitations on and expense of Internet services at the time of the invention, Petitioner argues that customers would have been served better by a system that transmits compressed files, e.g., from Ishii's "on-line" database, since transmitting decompressed files would increase end-user latency and, therefore, the cost of obtaining the transmitted data. *Id.* Petitioner also provides explicit reasons why a person of ordinary skill would have been motivated to include each of the different features of the dependent claims (file data and storage (claims 3–6), compression based on access frequency (claim 8)). *Id.* at 46–52. For example, with respect to file storage disclosure, Petitioner contends that a person of ordinary skill in the art reviewing Dvir's video compression and transmission system that displays "both audio and visual data" at a "wireless remote monitor" would have been motivated to implement Ishii's storage disclosure to improve the utilization efficiency of file storage capacity and computing resources for file compression. *Id.* at 46. Petitioner

submits that this addition would serve to reduce end user latency by temporarily storing compressed files prior to transmission. *Id.* at 46–47. As for compression based on access frequency, Petitioner asserts that a person of ordinary skill would be motivated to combine Ishii's compression based on access frequency because Ishii reduces the drain on computing resources (such as processor cycles, data bus usage, power consumption) required to maintain the storage system. *Id.* at 47.

We find that Petitioner has shown a sufficient motivation to combine Dvir and Ishii. *See* Ex. 1003 ¶¶ 161–172. We find Petitioner's reasoning for the combination to be detailed, articulated, and supported by the rational and well-reasoned testimony of Dr. Acton. *See* Pet. 46–52; Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 77–91. We do not find Patent Owner's arguments to the contrary persuasive. PO Resp. 48–52. First, Patent Owner argues that it would be clear to a person of ordinary skill in the art that Dvir "has no concern at all about where the multimedia data comes from and whether or not it is stored or is live-streaming." *Id.* at 49. Patent Owner bases this contention on the fact that Dvir only teaches data compression for the purpose of transmitting through bandwidth limited channels, and does not disclose storage of multimedia data. *Id.* at 48–49. Similarly, Patent Owner argues that Ishii does not disclose compressing multimedia data. *Id.* at 50. However, it is clear that the motivation to combine need not be found in the references themselves. *See DyStar Textilfarben GmbH & Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1366 (Fed. Cir. 2006). Thus, the lack of disclosure of storage in Dvir or multimedia in Ishii does not necessarily defeat a motivation to combine. Instead, as Dr. Acton explains, a person of ordinary skill would have readily understood that Dvir uses file storage and

would have sought to improve it, regardless of whether Dvir expressly suggests making such an improvement and a person of ordinary skill would have understood that Ishii could be applied to multimedia files. *See* Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 77–91.

Second, Patent Owner asserts that "Dvir and Ishii are disjoint—they simply have nothing to do with each other." PO Resp. 49–50. Patent Owner argues that the frequency of access of Dvir's multimedia data has "nothing to do with how effectively they are compressed and delivered to the clients," and "[a] POSITA would have no motivation to combine Ishii's teachings into Dvir's system since [they] have no overlap in functionality." *Id.* at 50. However, "familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *KSR*, 550 U.S. at 420. Patent Owner's requirement that the references must overlap has no basis in the law. Again, as Dr. Acton explains, a person of ordinary skill would have recognized other ways to improve the system of Dvir and been motivated to make those modifications. Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 77–91. Moreover, there is overlap between the references. Both deal with compression of data and the selection of compressors and would have reasonably commended themselves to a person of ordinary skill seeking to improve the selection of compressors for multimedia data. Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 79, 80.

Third, Patent Owner contends that a person of ordinary skill would not have been motivated to make the combination because adding Ishii's teachings would increase the complexity of Dvir's system. *Id.* at 50–51. Yet, a mere increase in complexity also does not defeat a motivation to

combine. Indeed, the law is clear that "just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes." *In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012); *see also In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) ("[O]ur case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention."); *In re Gurley*, 27 F.3d 551, 552–53 (Fed. Cir. 1994) ("A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use"). Moreover, Petitioner and Dr. Acton have identified specific benefits—i.e. optimizing space savings and reducing end-user latency—that would result from combining the teachings of the two references that would have motivated a person of ordinary skill to make the combination. Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 77–91. We find these benefits to be more than sufficient to motivate a person of ordinary skill in spite of the potential complexity costs.

Finally, Patent Owner asserts that a person of ordinary skill would not have been motivated to combine Dvir and Ishii because they have different principles of operations. *Id.* at 51–52. In particular, Patent Owner submits that Dvir compresses data and sends it to remote clients and has no incentive to improve storage. *Id.* at 51. Ishii, on the other hand, compresses files for storage, but transmits decompressed files. Patent Owner contends that the "vast differences" in operation between the references means a person of ordinary skill would not have been motivated to combine the references. *Id.* at 52. We agree with Petitioner that the combination would not change Dvir's principle of operation. Reply 25–26. As Petitioner explains, Patent

Owner ignores Dvir's file storage system and the potential benefits that a person of ordinary skill would have sought by improving Dvir with Ishii's teachings. *See* Ex. 1031 ¶¶ 89–91. We agree that this would not change the principle of operation of Dvir, but would have instead improved its operation in the ways identified by Dr. Acton. *See* Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 77–91.

Weighing all of these contentions collectively against Petitioner's evidence, we find Petitioner has shown by a preponderance of the evidence that a person of ordinary skill would have been motivated to combine Dvir and Ishii. In particular, we find persuasive and give substantial weight to Dr. Acton's testimony, discussed above. We find that his reasoning is more than sufficient to carry Petitioner's burden to show that a person of ordinary skill would have been motivated to make the combination with a reasonable expectation of success. Ex. 1003 ¶¶ 161–172; Ex. 1031 ¶¶ 77–91.

c. Summary

For the reasons explained above, Petitioner has demonstrated sufficiently that the combination of Dvir and Ishii would have accounted for the subject matter of claims 3–6, 8, 11, and 12 of the '535 Patent and that a person of ordinary skill would have been motivated to make the proposed combinations and would have had a reasonable expectation of success. Patent Owner did not submit any evidence of objective indicia of non-obviousness.

Weighing the evidence of the disclosures of the references and the reasons to combine the references we determine that Petitioner has shown by a preponderance of the evidence that claims 3–6, 8, 11, and 12 of the '535 Patent are unpatentable as obvious over the combination of Dvir and Ishii.

V. CONCLUSION[8]

For the foregoing reasons, on this record, Petitioner has established by a preponderance of the evidence that claims 1–6, 8–12, 14 of the '535 Patent are unpatentable. A summary of our findings is provided below.

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 9, 10, 14	102	Dvir	1, 2, 9, 10, 14	
1, 2, 9, 10, 14	103	Dvir		
3–6, 8, 11, 12	103	Dvir and Ishii	3–6, 8, 11, 12	
Overall Outcome			1–6, 8–12, 14	

We do not reach Petitioner's alternative ground that claims 1, 2, 9, 10, and 14 would have been obvious under 35 U.S.C. § 103(a) over Dvir alone.

VI. ORDER

Accordingly, it is:

ORDERED that claims 1–6, 8–12, 14 of U.S. Patent No. 8,934,535 B2 have been shown to be unpatentable; and

[8] 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, 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

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

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