

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SOLAREGE TECHNOLOGIES LTD.,
Petitioner,

v.

SMA SOLAR TECHNOLOGY AG,
Patent Owner.

IPR2020-00021
Patent 8,922,048 B2

Before JONI Y. CHANG, KRISTEN L. DROESCH, and
SCOTT B. HOWARD, *Administrative Patent Judges*.

HOWARD, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claim Unpatentable
35 U.S.C. § 318(a)

INTRODUCTION

A. Background and Summary

SolarEdge Technologies Ltd (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–10 of U.S. Patent No. 8,922,048 B2 (Ex. 1001, “the ’048 patent”). Paper 2 (“Petition” or “Pet.”). SMA Solar Technology AG (“Patent Owner”) filed a Patent Owner Preliminary Response. Paper 7. We instituted an *inter partes* review of claims 1–10 of the ’048 patent on all grounds of unpatentability alleged in the Petition. Paper 8 (“Institution Decision” or “Inst. Dec.”).

After institution of trial, Patent Owner filed a Response (Paper 12, “PO Resp.”), Petitioner filed a Reply (Paper 15, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 16, “PO Sur-reply”).

An oral hearing was held on January 11, 2021, and the record contains a transcript of this hearing. Paper 22 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1–10 of the ’048 patent are unpatentable.

B. Real Parties in Interest

Petitioner identifies SolarEdge Technologies Ltd. as the real party in interest. Pet. 1.

Patent Owner identifies SMA Solar Technology AG as the real party in interest. Paper 5, 1 (Patent Owner’s Mandatory Notices).

C. Related Matters

The parties identify the following *inter partes* review proceeding involving the ’048 patent: *Solaredge Technologies Ltd. v. SMA Solar Technologies AG*, IPR2020-00022. Paper 3, 2 (Petitioner’s Petition Ranking

and Explanation of Material Differences Between Petitions); Paper 5, 1. We denied institution of that request for *inter partes* review. IPR2020-00022, Paper 8.

D. The '048 Patent

The '048 patent issued on December 30, 2014, from a PCT application filed on February 11, 2009. Ex. 1001, codes (45), (22). The '048 patent is titled “PV [Photo Voltaic] Sub-generator Junction Box, PV Generator Junction Box, and PV Inverter for a PV System, and PV System.” *Id.*, code (54).

Figure 1 of the '048 patent is reproduced below.

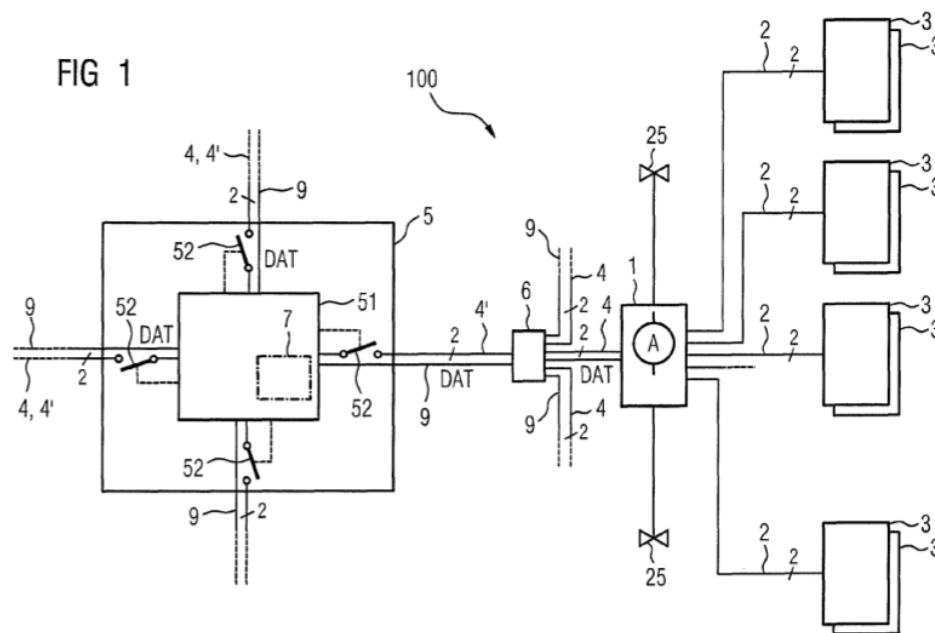


Figure 1 “is an illustration of [a] PV system, in accordance with the prior art” which includes various PV modules 3, PV sub-generator 1, PV generator 6, and PV inverter 5. Ex. 1001, 6:58–59, 7:7–51. Figure 1 shows PV sub-generator lines and PV main DC power lines 4'. *Id.* at 7:9–11. “The mark across the PV sub-generator lines 4 or the PV main DC power lines 4' identified by numeral 2 indicates that the line is preferably a two-wire line.”

Figure 3, the data lines have been removed and only a single line—a DC power line—connects inverter 5 with PV generator box 6 and a single line—a DC power line—connects PV generator box 6 with each PV sub-generator box 1. *Id.*, Fig. 3.

Figure 6 of the '048 patent is reproduced below.

FIG 6

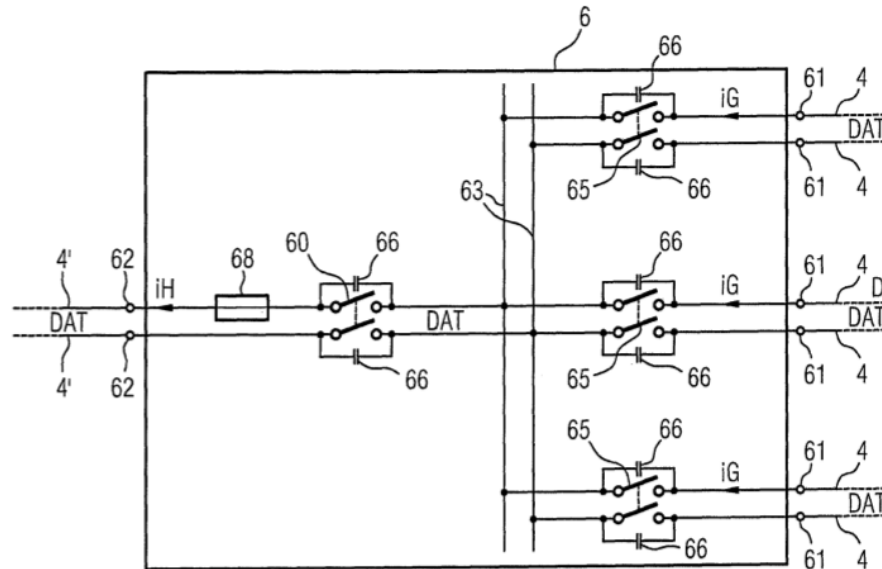


Figure 6 “is an illustration of an exemplary generator junction box in accordance with the invention” disclosed in the '048 patent. Ex. 1001, 7:1–2. Figure 6 shows

data signal coupler 66 . . . connected in parallel to the respective circuit breakers 60, 65 so that data DAT which is fed into the respective PV sub-generator lines 4 and into the PV main DC power line 4' is also able to be forwarded in the opened state of the respective circuit breaker 60, 65.

Id. at 10:28–33.

E. Illustrative Claims

Petitioner challenges claims 1–10 of the '048 patent. Pet. 1.

Claims 1, 4, 5, and 7 are independent. *See* Ex. 1001, 10:58–12:60. Claims 1

and 4 are illustrative of the subject matter of the challenged claims and read as follows:

1. A photovoltaic (PV) sub-generator junction box for a PV system, comprising:

a plurality of electrical terminals for connection to respective PV string lines of at least one series-connected PV module; and

a sub-generator line terminal for connection to a remote central PV inverter;

an electronic control unit connected for data communication to a central control unit within the remote central PV inverter for exchange of data;

wherein the PV sub-generator line is configured to deliver power received from respective PV string lines to the remote central PV inverter; and

a power line modem configured to transmit and receive the data over the PV sub-generator line that delivers power;

wherein the electronic control unit includes at least one electrical output for activating at least one switching device of the PV sub-generator junction box, and wherein the data receivable from the central control unit within the PV inverter by the power line modem comprises corresponding control data.

4. A photovoltaic (PV) generator junction box for a PV system, comprising:

a plurality of sub-generator line terminals for connection to respective PV sub-generator lines of PV sub-generator junction boxes;

a main DC power line terminal for connecting a PV main DC power line of a remote central PV inverter;

at least one of a main circuit breaker for disconnecting the PV main power line and a collective circuit breaker for disconnecting a respective one of the PV sub-generator lines; and a data signal coupler connected in parallel to a respective circuit breaker of the at least one of the main circuit breaker and the

collective circuit breaker, so that data to be transferred between the respective PV sub-generator line and the PV main DC power line is also able to be forwarded through the data signal coupler when the respective circuit breaker is in an open state.

Id. at 10:58–11:11, 11:27–44.

F. Asserted Prior Art and Grounds

Petitioner asserts that claims 1–10 would have been unpatentable on the following grounds:¹

Claims Challenged	35 U.S.C. § ²	References
1–10	103(a)	Applicant Admitted Prior Art (AAPA), ³ Rodgers ⁴
1–3, 5, 7	103(a)	AAPA, Frezzolini ⁵
4, 6, 8–10	103(a)	AAPA, Frezzolini, Iwamura ⁶
4, 10	103(a)	AAPA, Richter, ⁷ Rodgers

¹ Petitioner identifies three grounds, two of which have alternative combinations: (1) AAPA and Rodgers or Frezzolini and (2) AAPA and Rodgers or Frezzolini-Iwamura. Pet. 19. Each alternative combination has been listed separately. Petitioner also lists AAPA and Rodgers as two separate grounds directed to different claims. *Id.* Those grounds have been combined.

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102, 103 that became effective on March 16, 2013. Because the ’048 patent issued from an application filed before March 16, 2013, we apply the pre-AIA versions of the statutory bases for unpatentability.

³ Petitioner identifies Figures 1 and 2 and the text at column 2, line 54 through column 3, line 62; column 6, lines 58 through 61; and column 7, line 7 through column 8, line 50 of the ’048 patent as applicant admitted prior art (“AAPA”). Pet. 9.

⁴ US 2007/0008076 A1, published Jan. 11, 2007 (Ex. 1003).

⁵ US 2007/0019613 A1, published Jan. 25, 2007 (Ex. 1005).

⁶ US 2007/0213879 A1, published Sept. 13, 2007 (Ex. 1006).

⁷ WO 2007/048421 A2, published May 3, 2007 (Ex. 1004).

Additionally, Petitioner relies on the Declarations of Jonathan R. Wood, Ph.D. (Ex. 1011; Ex. 1020) and Patent Owner relies on the Declarations of Thomas Blackburn (Ex. 2001; Ex. 2005).

ANALYSIS

A. Legal Standard for Assessing Obviousness

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under 35 U.S.C. § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the U.S. Court of Appeals for Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor,” *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (en banc). We note that, with respect to the fourth *Graham* factor, the parties have not presented argument or evidence directed to secondary considerations of nonobviousness. *See* Pet.; PO Resp. The analysis below addresses the first three *Graham* factors.

B. Level of Ordinary Skill in the Art

Factors pertinent to a determination of the level of ordinary skill in the art include (1) the educational level of the inventor; (2) the types of problems encountered in the art; (3) prior art solutions to those problems;

(4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of workers active in the field. *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive, but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co., Ltd., Inc. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

Petitioner argues—supported by the testimony of Dr. Wood—that a person having ordinary skill in the art “would have had a bachelor’s degree in mechanical engineering, electrical engineering, or a similar discipline and *at least* two years of design experience with photovoltaic systems.” Pet. 20 (emphasis added) (citing Ex. 1011 ¶¶ 18–22).

In the Institution Decision, we adopted Petitioner’s description of a person having ordinary skill in the art, “except that we delete[d] the qualifier ‘at least’ to eliminate vagueness as to the amount of practical experience.” Inst. Dec. 15–16.

Patent Owner does not address that determination. *See* PO Resp. Accordingly, for the reasons given in the Institution Decision, we adopt Petitioner’s proposed level of ordinary skill, except that we delete the qualifier “at least” to eliminate vagueness as to the amount of practical experience. *See* Inst. Dec. 16. Therefore, a person having ordinary skill in the art would have had a bachelor’s degree in mechanical engineering, electrical engineering, or a similar discipline and two years of design experience with photovoltaic systems.

C. Claim Construction

We apply the same claim construction standard used in the federal courts, in other words, the claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2019). Under the *Phillips* standard, the “words of a claim are generally given their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13 (quotation marks and citations omitted).

Petitioner argues that all claim terms should be construed according to their ordinary and customary meaning at the time of the invention. Pet. 20. Patent Owner argues that two terms require explicit constructions: “the power line modem” and “the data signal coupler.” PO Resp. 20–22.

Because no express construction is needed to resolve any dispute in this proceeding, we do not construe any of the claim limitations. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. AAPA Grounds

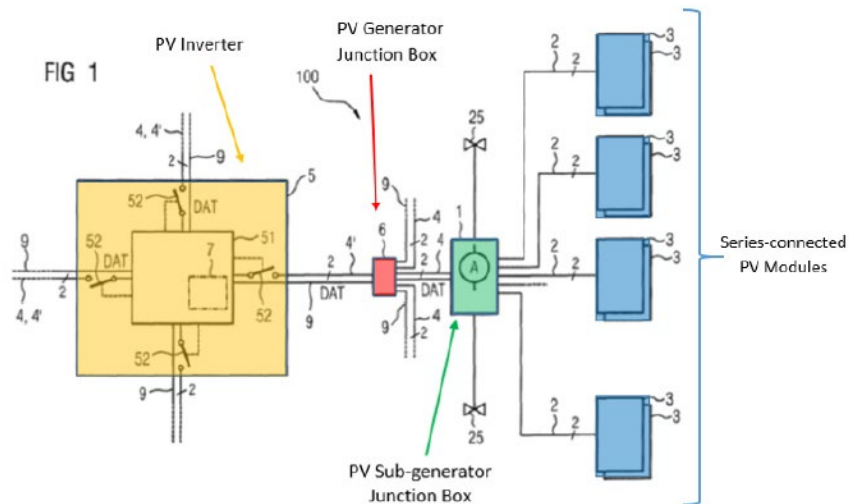
Each of the grounds to the challenged claims in the Petition relies in part on AAPA. Pet. 19.

Patent Owner argues Petitioner’s use of AAPA is improper under 35 U.S.C. § 311(a). *See* PO Resp. 55–56.

1. Summary of AAPA

The '048 patent identifies a prior art PV system including inverter 5, generator junction box 6, sub-generator junction boxes 1, and connected PV modules 3. *See* Ex. 1001, 2:64–3:52, 7:7–8:50, Fig. 1. AAPA includes DC power lines—main DC power line 4' and sub-generator line 4—for transferring power and a separate data communication line 9 for exchanging data. *Id.* at 7:7–67, Fig. 1.

Petitioner annotated a version of Figure 1 of the '048 patent, which is reproduced below.



Pet. 21. Figure 1 “is an illustration of [a] PV system, in accordance with the prior art” and has been annotated by Petitioner to identify the PV inverter (yellow), the PV Generator Junction Box (red), the PV Sub-generator Junction Box (green), and Series-connected PV Modules (blue). *Id.*; Ex. 1001, 6:58–59.

2. Rodgers

Rodgers teaches a residential power distribution system 100, which includes a power management system 300. Ex. 1003 ¶ 23. A webserver communicates messages throughout the residential power distribution

system by “send[ing]] and receiv[ing] power line communications (PLC) messages via a conventionally known PLC modem.” *Id.* ¶ 24; *see also id.* ¶ 59 (“The dynamic load management system 300 further includes . . . a PLC modem 304.”).

According to Rodgers, “[o]ne of the problems with PLC messaging is that when current state-of-the-art circuit breakers are in the open position the communication link is broken.” Ex. 1003 ¶ 34. In order to “overcome this problem,” Rodgers teaches that “the PLC module (communications interface 224) spans the gap to provide a communication path between the line side of the circuit and the load side by means of power line couplers 250a-d.” *Id.*

3. Frezzolini

Frezzolini teaches “a system wherein the transmission of data takes place via power line carrier transmission along the power supply line of the various electrical devices to which the control devices are associated.” Ex. 1005 ¶ 2. More specifically, the “transmission occurs via power line carrier transmission on the power supply line by means of modems specifically produced for this function and known as PLM (Power Line Modem).” *Id.* ¶ 16; *see also id.* ¶ 45.

4. Iwamura

Iwamura “provide[s] systems and methods for implementing and controlling local power line communication (PLC) networks.” Ex. 1006, code (57). Iwamura teaches using circuit breakers between central controller 130 and other elements of the PLC network. *Id.* ¶ 47. Iwamura further teaches that “circuit breakers include a switch that opens when a current exceeding a threshold is drawn through the circuit breaker” and that “[t]his opening of the switch in a typical breaker also breaks PLC connections between devices of a local PLC network.” *Id.*

In order to allow communication when the switch is open, Iwamura teaches using PLC signal coupler 742 to bridge circuit breaker switch even when the switch is open. Ex. 1006 ¶ 58. Iwamura further teaches that “the breaker PLC signal coupler 742 can include a transducer and may be an inductive coupler such as toroid coupling transformer, a capacitive coupler or other relevant coupler or combination of couplers, for coupling PLC data through the PLC circuit breaker 720.” *Id.* ¶ 59.

5. *Richter*

Richter “relates to an electrical circuit arrangement for controlling the output of at least one string of a solar generator.” Ex. 1004, code (57). Richter teaches that various arrangements of solar modules and connecting housings may be used to carry out the invention and for controlling—via switches—the output of one or more connecting lines. *Id.* at 22:25–24:11, Figs. 2–9.

6. *Whether AAPA Forms the Basis of the Petition*

a) *The Guidance Memo*⁸

The Director issued a Memorandum discussing how the PTAB will treat a petitioner’s reliance on statements made in the specification of a challenged patent. Guidance Memo.⁹ Such statements are frequently referred to as applicant admitted prior art.

⁸ August 18, 2020, USPTO Memorandum addressing Treatment of Statements of the Applicant in the Challenged Patent in Inter Partes Reviews under § 311 (“Guidance Memo”), available at https://www.uspto.gov/sites/default/files/documents/signed_aapa_guidance_memo.pdf. Petitioner filed a copy of the Guidance Memo as Exhibit 1036.

⁹ The Director issued the Guidance Memo after the Institution Decision. Petitioner addressed the Guidance Memo in its Reply and Patent Owner

Section 311(b) of Title 35 of the U.S. Code limits the prior art that may be used as the “basis” of an *inter partes* review to “patents or printed publications.” 35 U.S.C. § 311(b); *accord* Guidance Memo 3. A patent cannot be prior art to itself, and thus, the patent challenged in an *inter partes* review cannot form the “basis” of an *inter partes* review. Guidance Memo 3–4. “The generally-understood meaning of ‘basis’ supports reading § 311(b) to require that at least one prior-art patent or printed publication form the ‘foundation or starting point’ of the IPR, but not to foreclose consideration of other pertinent patentability information.” *Id.* at 6 (footnote omitted).

Notwithstanding the provisions of § 311(b), a properly conducted obviousness analysis necessarily depends upon the knowledge possessed by an ordinary-skilled artisan. Guidance Memo 5. The Guidance Memo sets forth three permissible uses of statements made in the specification of the patent that is being challenged in an *inter partes* review as evidence of general knowledge:

Permissible uses of general knowledge of one having ordinary skill under § 103 include (1) supplying missing claim limitations that were generally known in the art prior to the invention (for pre-AIA patents) or the effective filing date of the claimed invention (for post-AIA patents); (2) supporting a motivation to combine particular disclosures; or (3) demonstrating the knowledge of the ordinarily-skilled artisan at the time of the invention (for pre-AIA patents) or the effective filing date of the claimed invention (for post-AIA patents) for any other purpose related to patentability.

addressed it in its Sur-reply. *See* Pet. Reply 24; PO Sur-reply 3–11. Neither party requested additional briefing.

Id. at 6 (citing *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337–38 (Fed. Cir. 2020)); *see also id.* at 9 (stating that statements made in the specification of the patent being challenged can be used as evidence of general knowledge provided that “the basis of the IPR is one or more prior art patents or printed publications”).

b) Petitioner’s Arguments

Petitioner argues that the patent applicant made admissions in the specification “regarding the scope of the prior art that can be relied upon for obviousness determinations during *inter partes* review.” Pet. 9 (citing *Apple Inc., v. Qualcomm Inc.*, IPR2018-01316, Paper 7 at 22 (PTAB Jan. 18, 2019) (Institution Decision); *One World Techs., Inc. v. The Chamberlain Group, Inc.*, IPR2017-00126, Paper 8 at 8–10 (PTAB May 4, 2017) (Institution Decision); MPEP § 2129) (other citations omitted). Petitioner further argues that its use of AAPA in the Petition is consistent with the Guidance Memo and Federal Circuit decisions. Pet. Reply 24 (citing *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020); *Apple*, Paper 7, 22). Petitioner argues that “the disclosure of known prior art PV systems in the ’048 patent (*i.e.*, the AAPA) ‘evidence[s] the general knowledge possessed by [a PHOSITA]’ and is used in conjunction with various other prior art . . . to supply missing claim limitations and support a motivation to combine particular disclosures.” *Id.* (second alteration in original) (quoting Guidance Memo 4). According to Petitioner, in this case “the AAPA can support an obviousness argument.” *Id.* (citing Guidance Memo 4–6, 9).

Additionally, during the oral hearing, Petitioner argues that determining the basis of the IPR involves looking at which prior art is used to show the alleged point of novelty: “[T]o determine the basis of an IPR, you don’t just count up the number of claim limitations that are admittedly

known. Instead, we must consider what prior art is being used to teach the allegedly novel features.” Tr. 10; *accord id.* at 11 (“I would state that the starting point or the foundation of this IPR are the allegedly novel or supposedly novel features in the patent.”). According to Petitioner, because the Petition relies on prior art patents to show the ’048 patent’s alleged point of novelty—the use of a bi-directional power line modem and a data bypass coupler—AAPA was not used as the basis of the IPR. *Id.* at 10–11 (“As discussed earlier, the focus of this IPR is centered directly on the disputed power line modem and bypass coupler features, which the patent, the prosecution history, and Patent Owner have consistently presented as the alleged point of novelty.”).

c) Patent Owner’s Arguments

Patent Owner argues 35 U.S.C. § 311(b) limits *inter partes* review such that “(1) only grounds under Section 102 or Section 103 can be raised, and such 102/103 grounds can be raised based only on (2a) prior art patents, or (2b) prior art printed publications.” PO Resp. 56. Patent Owner further argues that its “statutory interpretation is supported by the promulgated rule to implement the statutory provision,” namely, “37 C.F.R. § 42.104(b)(4) states that an IPR petition ‘must specify where each element of the claim is found in the prior art patents or printed publications relied upon.’” *Id.* According to Patent Owner, “[w]ith a clear, unambiguous statutory text, such as in the present case with Section 311(b), . . . the proper judicial role ‘is to apply, not amend, the work of the People[’]s representatives.’” *Id.* at 57 (quoting *Henson v. Santander Consumer USA*, 137 S. Ct. 1718, 1726 (2017)).

Patent Owner also argues that neither of the two PTAB decisions cited by Petitioner “explains how the statutory text of Section 311(b) is

ambiguous and thus warrants extra-textual interpretation to expand the textual language to include admissions as a basis for institution.” PO Resp. 58. Patent Owner further argues that those cases “contradict a holding by another, earlier PTAB panel that holds under Section 311(b) that AAPA description in the patent under review does not qualify as prior art on which an *inter partes* review may be instituted.” *Id.* (citing *Fresenius Kabi USA, LLC v. Cephalon, Inc.*, IPR2016-00098, Paper 10 at 17 (PTAB May 4, 2016) (Institution Decision)). Patent Owner further argues that using AAPA is inconsistent with statements by Administrative Patent Judges in a PTO blog. *Id.* at 59 (citing Jacqueline Bonilla & Sheridan Sneddan, *AIA Blog Message from Administrative Patent Judges Jacqueline Bonilla and Sheridan Snedden: Routine and Additional Discovery in AIA Trial Proceedings: What Is the Difference?*, USPTO Website (Sept. 30, 2014, 10:01 AM), <https://www.uspto.gov/patent/laws-and-regulations/america-invents-act-aia/aia-blog-message-administrative-patent-judges>).

Patent Owner also argues that Petitioner’s use of AAPA in this proceeding is not proper because it forms the basis of Petitioner’s arguments. *See* PO Sur-reply 11; *accord id.* at 4–11. Specifically, Patent Owner argues that the Guidance Memo “does not make a blanket statement that AAPA can be combined with a prior art patent or printed publication.” PO Sur-reply 4. Instead, Patent Owner argues that statements in the specification of the ’048 patent “may not constitute ‘the basis’ of the [*inter partes*] review.” *Id.* at 5 (citing Guidance Memo 6 n.4). According to Patent Owner, because “AAPA forms the foundation or starting point for each ground” in the Petition, “Petitioner employs AAPA as the basis of the grounds in the Petition.” *Id.* at 6; *accord id.* at 6–11 (setting forth arguments).

Patent Owner argues during the oral hearing that Petitioner did not make its point of novelty argument in its papers. Tr. 63.

d) Our Analysis

With regard to the parties' legal arguments, the Guidance Memo is "binding agency guidance to govern the Board's implementation of various statutory provisions, including directions regarding how those statutory provisions shall be applied to sample fact patterns." Guidance Memo 2 (citing 35 U.S.C. § 3(a)(2)(A); SOP 2,¹⁰ 1–2). We incorporate the Guidance Memo's legal analysis and adopt it as our own. Accordingly,

Statements made in the specification of the patent that is being challenged in an IPR can be used as evidence of such general knowledge, and thus, *provided the basis of the IPR is one or more prior art patents or printed publications*, can be used to (1) supply missing claim limitations that were generally known in the art prior to the invention (for pre-AIA patents) or the effective filing date of the claimed invention (for post-AIA patents); (2) support a motivation to combine particular disclosures; or (3) demonstrate the knowledge of the ordinarily-skilled artisan at the time of the invention (for pre-AIA patents) or the effective filing date of the claimed invention (for post-AIA patents) for any other purpose related to patentability.

Guidance Memo 9 (emphasis added).

We do not find Petitioner's arguments regarding the use of applicant admitted prior art persuasive. Petitioner cites two Board decisions using applicant admitted prior art: *Apple*, IPR2018-01316, Paper 7 and *One World*, IPR2017-00126, Paper 8. Pet. 9; Pet. Reply 24. However, the

¹⁰ Patent Trial and Appeal Board, Standard Operating Procedure 2 (Revision 10), available at <https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf>.

Guidance Memo found the rationale of those cases¹¹ to be “not consistent with the statute.” Guidance Memo 3.

Petitioner also relies on *Koninklijke Philips*, 948 F.3d 1330. However, *Koninklijke Philips* does not explicitly discuss the use of applicant admitted prior art nor does it explicitly hold that such admissions can be used as the basis for an *inter partes* review. See 948 F.3d 1330. Instead, as the Guidance Memo makes clear, *Koninklijke Philips* simply “holds that evidence of general knowledge other than that found in a prior art patent or printed publication can be used in an IPR” and “can supply legally relevant information.” Guidance Memo 5–6. However, the Guidance Memo also makes it clear that such statements cannot “constitute[e] the ‘basis’ of the obviousness ground raised under § 103.” *Id.* at 6.

Accordingly, based on the Guidance Memo, the issue in this proceeding is whether AAPA is being used as the basis of the *inter partes* review. We are not persuaded by Petitioner’s arguments that its use of AAPA is consistent with the Guidance Memo. Instead, Petitioner improperly uses AAPA as the basis for its arguments.

We focus our analysis on what was the starting point or foundation of the challenges set forth in the Petition. Guidance Memo 6. As the Petition’s Summary of the Argument makes clear, Petitioner’s arguments are based on starting with what AAPA teaches and then modifying AAPA to add a feature from prior art patents:

As explained herein, AAPA teaches virtually all elements of the ’048 patent’s independent claims, including combiner

¹¹ Petitioner cites to the decisions on institution. The Guidance Memo discusses the Final Written Decisions. That difference is not material to the analysis.

boxes (*i.e.*, sub-generator and generator junction boxes) that collect, monitor, and manage power flow from multiple DC power sources for transmission to an inverter. For elements arguably not taught by AAPA, both Rodgers and Frezzolini teach PLC modems that transmits data over existing power lines, thus eliminating the need for dedicated communication lines. In addition, Richter teaches main circuit breakers for disconnecting power lines between PV devices. Further, both Rodgers and Iwamura teach data couplers for maintaining a PLC path across an open switch. *Adding these features to AAPA's system would have been obvious, and yields the alleged invention claimed in the '048 patent.*

Consequently, the alleged invention would have been obvious at least because a PHOSITA would have been motivated to combine Rodgers' or Frezzolini's PLC modem, Richter's circuit breakers, and Rodgers' or Iwamura's data couplers with AAPA's system.

Pet. 18 (emphasis added). That is, Petitioner argues that a person having ordinary skill in the art would have started with AAPA's system and then added additional elements to that foundation/starting point. *See id.*

Petitioner's reason to combine the references further demonstrates that the Petition uses AAPA as the foundation/starting point of the challenge. For example, with regard to claim 1, Petitioner argues that "AAPA's sub-generator junction box exchanges data with inverter 5 via data communication lines 9 and AAPA's PV sub-generator line 4 is configured to deliver power from sub-generator junction box 1 to inverter 5." Pet. 26 (citation omitted). Petitioner further argues that a person having ordinary skill in the art "would have been motivated to modify AAPA's sub-generator junction box 1—using Rodgers' or Frezzolini's PLC modem—to exchange data with inverter 5 via sub-generator line 4 and/or PV main DC power line 4'." *Id.* at 27. That is, Petitioner argues that a person having ordinary skill in the art would have modified AAPA to include a power line modem

from a Rodgers or Frezzolini—the prior art patents or publications. *See id.* Petitioner offers similar reasons to combine the prior art for the other independent claims. *See* Pet. 55, 79–80 (claim 4), 40–41 (claim 5), 45–46 (claim 7). Thus the reasons given to combine the prior art confirm that the Petition uses AAPA as the foundation and starting point of the analysis.

Indeed, Petitioner conceded as much during the oral hearing. Counsel for Petitioner agreed that the Petition’s theory was not based on starting with a prior art reference such as Frezzolini, eliminating all of the elements except for the power line modem, and then looking for a system—such as AAPA—to use it with. Tr. 55–56. Instead, Counsel agreed that the Petition’s theory was that a person having ordinary skill in the art would have started with AAPA and then modified it in light of Frezzolini’s teaching of using a power line modem:

[THE PANEL]: Taking a look, though, at the argument, how you set it forth at the petition, and let’s just look at Frezzolini for example. You’re not saying that a person skilled in the art would have looked at Frezzolini, would have gotten rid of everything except the power line modem, and then looked for places to go and use that power line modem such as the applicant admitted prior art; *isn’t your argument a person of skill in the art would have looked at the system in the applicant admitted prior art, seen that they had separate data and power line, and then realizing from Frezzolini that you can go and use the power lines to transmit data, go and incorporate the power line modem and getting rid of the data lines, isn’t that a fair description of what you’re saying a person of skill in the art would have done?*

MR. DIKE: That is a fair description, Your Honor.

Id. (emphasis added)

Not only did the Petition start with AAPA, but it relies on AAPA for all of the claim limitation except for power line modems and data signal couplers. *See* Pet. 20–25, 30–39, 42–47, 49–54, 59–73; Pet. Reply 4, 18–19;

Tr. 5–8. This can be seen below with emphases used to identify those limitation that Petitioner argues are taught by AAPA:

1. A photovoltaic (PV) sub-generator junction box for a PV system, comprising:

a plurality of electrical terminals for connection to respective PV string lines of at least one series-connected PV module; and

a sub-generator line terminal for connection to a remote central PV inverter;

an electronic control unit connected for data communication to a central control unit within the remote central PV inverter for exchange of data;

wherein the PV sub-generator line is configured to deliver power received from respective PV string lines to the remote central PV inverter; and

a power line modem configured to transmit and receive the data over the PV sub-generator line that delivers power;

wherein the electronic control unit includes at least one electrical output for activating at least one switching device of the PV sub-generator junction box, and wherein the data receivable from the central control unit within the PV inverter by the power line modem comprises corresponding control data.

4. A photovoltaic (PV) generator junction box for a PV system, comprising:

a plurality of sub-generator line terminals for connection to respective PV sub-generator lines of PV sub-generator junction boxes;

a main DC power line terminal for connecting a PV main DC power line of a remote central PV inverter;

at least one of a main circuit breaker for disconnecting the PV main power line and a collective circuit breaker for disconnecting a respective one of the PV sub-generator lines; and a data signal coupler connected in parallel to a respective circuit breaker of the at least one of the main circuit breaker and the

collective circuit breaker, so that data to be transferred between the respective PV sub-generator line and the PV main DC power line is also able to be forwarded through the data signal coupler when the respective circuit breaker is in an open state.

Id. at 10:58–11:11, 11:27–44; Pet. 20–25, 30–39, 42–47, 49–54, 59–73; Pet. Reply 4, 18–19; Tr. 5–8. Thus, Petitioner argues that the vast majority of the limitations—that is the foundation of the *inter parties* review—of the claims are found in AAPA.

We do not imply that the Guidance Memo prohibits the use of applicant admissions as the “lead reference.” Instead, under the facts of this case, the use of the AAPA as the lead reference combined with the use of AAPA for nearly all of the claim limitations establishes that the Petitioner uses AAPA as the basis—starting part and foundation—of its analysis.

We are also not persuaded by Petitioner’s argument that the basis of an *inter partes* review can be found by determining the alleged point of novelty of the invention. *See* Tr. 10–11 (arguing that, in determining whether we can use the applicant’s admissions, “we must consider what prior art is being used to teach *the allegedly novel features*” (emphasis added)); *id.* at 11 (“Your Honor, I would state that the starting point or the foundation of this IPR are the allegedly novel or supposedly novel features in the patent.”).

First, Petitioner did not raise that argument in either the Petition or Petitioner’s Reply. *See* Pet.; Pet. Reply. We do not consider arguments raised for the first time during oral arguments. *See Dell Inc. v. Acceleron, LLC*, 884 F.3d 1364, 1369 (Fed. Cir. 2018) (“Unless it chose to exercise its waiver authority under 37 C.F.R. § 42.5(b), the Board was obligated to dismiss Dell’s untimely argument given that the untimely argument in this case was raised for the first time during oral argument.”); *accord*

Consolidated Trial Practice Guide¹² 85–86 (“No new evidence and arguments. *During an oral hearing*, a party may rely upon appropriate demonstrative exhibits as well as evidence that has been previously submitted in the proceeding, *but may only present arguments relied upon in the papers previously submitted.*” (italics added)). Accordingly, Petitioner’s argument based on the point of novelty is forfeited.¹³

Second, even if we did consider the forfeited argument, we do not find it persuasive. Nothing in the Guidance Memo suggests using the alleged point of novelty as the test for determining what the basis of the *inter partes* review is. Instead, based on the definition of “basis,” the Guidance Memo directs us to determine if the admissions were used as the foundation or starting point of the *inter partes* review. Guidance Memo 6.

Moreover, as the Supreme Court has recognized, “there is no legally recognizable or protected ‘essential’ element, ‘gist’ or ‘heart’ of the invention in a combination patent.” *Aro Mfg. Co. v. Converible Top Replacement Co.*, 365 U.S. 336, 345 (1961); *see also Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002) (citing *Aro*). Indeed, based on the language of 35 U.S.C. § 103(a), the Federal Circuit has explicitly held that the point of novelty test is “erroneous[]”; instead, the proper focus is on “the subject matter of the invention ‘as a whole.’” *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1543 n.3 (Fed. Cir. 1984); *accord* 35 U.S.C. § 103(a) (“A patent may not be obtained

¹² Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

¹³ We note that Petitioner had the opportunity to raise that argument in its Reply, which was filed a month after the Director issued the Guidance Memo. We further note that Petitioner did not ask for additional briefing in light of the Guidance Memo.

though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are *such that the subject matter as a whole* would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” (emphasis added)). Because the point of novelty/gist of the invention test is inappropriate in an obviousness analysis and Petitioner cites no legal authority in support of its argument, we are not persuaded it is appropriate to use in determining whether an admission in a specification forms the basis of an obviousness challenge in an *inter partes* review. Instead, for the reasons discussed above, we focus on the claimed subject matter as a whole.

Our reasoning regarding how to determine the basis of a challenge is consistent with other post-Guidance Memo Board decisions. For example, in *Godo*, the Board found the petitioner improperly used applicant admitted prior art as the basis for the challenge when the claimed invention differed from the admissions in only a “few respects.” *Unified Patents, LLC v. Godo Kaisha IP Bridge 1*, IPR2020-01433, Paper 12, 11–12 (PTAB Jan. 27, 2021) (Institution Decision). The Board further found that to the extent the petitioner relied on a prior art reference, it was for a feature that was “well-known” to a person having ordinary skill in the art. *Id.* at 12; *see also MED-EL Elektromedizinische Geräte Ges.m.b.H v. Advanced Bionics AG*, IPR2020-01016, Paper 13 at 38–39 (PTAB Dec. 8, 2020) (Institution Decision) (determining that Petitioner’s reliance on AAPA as disclosing several structural and functional limitations of a cochlear implant system, and reliance on a prior art printed publication to disclose an additional electrical system, rendered AAPA as the “basis” for that ground).

Similar to *Godof*, in this case, Petitioner relies on AAPA for the vast majority of the limitations in the claims. Specifically, Petitioner relies on AAPA for every limitation except for the power line modem and the data signal coupler. *See* Pet. 10–11, 20–75; Tr. 5–8. Also similar to *Godof*, to the extent a limitation is not found in AAPA, Petitioner argues that power line modems and data signal couplers would have been well known to a person having ordinary skill in the art. Pet. 5 (“[I]t was well known to use power line modems and data signal couplers to transfer data over power lines in PV systems”); 8 (“[I]t was also known to implement PLC techniques to transmit data over power lines using power line modems.”); 9 (“A PHOSITA would have known that PV systems, therefore, commonly use data couplers—which enable data to be forwarded across an open circuit breaker.”); Tr. 8 (“As we’ve already discussed, the only difference between the admitted prior art and the claimed invention is the use of full-duplex DC PLMs and bypass couplers. *However, each of these components are well known products and are taught in the prior art.*” (emphasis added)).

On the other hand, the Board instituted trial in *Advanced Micro Devices* even though the petition relied on applicant admitted prior art. *Advanced Micro Devices, Inc. v. Monterey Research, LLC*, IPR2020-01124, Paper 10 (PTAB January 27, 2021) (Institution Decision). In *Advanced Micro Devices*, the Board held that the use of applicant admitted prior art to “supply an allegedly missing claim limitation that was well known in the prior art prior to the invention” was permissible. *Id.* at 44–45. More specifically, the challenged patent identified the admitted prior art as conventional. *Id.*

In contrast to *Advanced Micro Devices*, Petitioner does not use AAPA to supply only a single missing limitation. Instead, as discussed above,

Petitioner used AAPA for a vast majority of the claim limitations. Moreover, unlike in *Advanced Micro Devices*, the '048 patent does not identify AAPA as conventional; instead the '048 patent states that prior art systems were “[k]nown.” See Ex. 1001, 2:64–3:63; see also Guidance Memo 5–6 (discussing how Panel may use admissions that describes the prior art as “conventional” or “well-known”). Although AAPA might have been “known” to the applicant, the evidence in the record suggests that systems similar to the AAPA were not “well-known”:

Q. And what would lead you to believe that it's [(Figure 1 of the '048 patent)] not a prior art PV system?

A. I'm not saying it's not a prior art PV system. I mean, there are persons of ordinary skill that would look at Figure 1 and may not understand it as a prior art PV system.

This was drawn by the inventor of the '048 patent in his view of doing something -- some novel thing to arrive at the '048 patent.

This is his view of a prior art PV system. But like I say, if you look at all the prior art documents that I looked at, not one of them show this exact system.

So, I mean, it's -- if it was a prior art PV system well known in the art, then you would expect to see something very similar to this in a prior art document?

Ex. 1019, 50–51; see also Tr. 34 (Patent Owner does not concede that AAPA was “known to the public.”). In fact, the PV systems taught in the art of record do not demonstrate the system shown in AAPA. See Ex. 1004; Ex. 1005; Ex. 1015 (article describing a PV Systems).

For the reasons sets forth above, all of Petitioner's grounds depend on the use of AAPA as the foundation or starting point. Accordingly, the use of AAPA in this *inter partes* review is improper and we do not consider it. Because Petitioner does not argue that the prior art patents and printed

publications it relies on teach or suggest all of the limitations of the challenged claims (*see* Pet.), Petitioner has not shown by a preponderance of the evidence that claims 1–10 are unpatentable.¹⁴

CONCLUSION

For the foregoing reasons, we conclude that Petitioner has not demonstrated by a preponderance of the evidence the unpatentability of claims 1–10 of the '048 patent. Specifically, Petitioner has not demonstrated by a preponderance of the evidence that (1) claims 1–10 would have been obvious under 35 U.S.C. § 103(a) in view of AAPA and Rodgers, (2) claims 1–3, 5, and 7 would have been obvious under 35 U.S.C. § 103(a) in view of AAPA and Frezzolini, (3) claims 4, 6, and 8–10 would have been obvious under 35 U.S.C. § 103(a) in view of AAPA, Frezzolini, and Iwamura, and (4) claims 4 and 10 would have been obvious under 35 U.S.C. § 103(a) in view of AAPA, Richter, and Rodgers.

ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has not shown by a preponderance of the evidence that claims 1–10 of the '048 patent are unpatentable; 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.

¹⁴ Because we determine that the use of AAPA in this *inter partes* review is improper, we do not address Patent Owner's remaining arguments as to why the prior art does not teach a power line modem or data coupler that could be used on a DC line or that a person having ordinary skill in the art would not have combined the references. *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (holding that once a dispositive issue is decided, there is no need to decide other issues).

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–10	103(a)	AAPA, Rodgers		1–10
1–3, 5, 7	103(a)	AAPA, Frezzolini		1–3, 5, 7
4, 6, 8–10	103(a)	AAPA, Frezzolini, Iwamura		4, 6, 8–10
4,10	103(a)	AAPA, Richter, Rodgers		4, 10
Overall Outcome				1–10

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