

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLIED CONCEPTS INC.,
Petitioner,

v.

KUSTOM SIGNALS INC.,
Patent Owner.

IPR2024-00884
Patent 11,703,602 B2

Before CARL M. DeFRANCO, RICHARD H. MARSCHALL, and
BACH V. HOANG, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Petitioner Applied Concepts Inc. filed a Petition requesting *inter partes* review of claims 1–15 of U.S. Patent No. 11,703,602 B2 (Ex. 1001, “the ’602 patent”). Paper 1 (“Pet.”). Patent Owner, Kustom Signals Inc., filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 8 (“Prelim. Reply”)) and Patent Owner filed a Preliminary Sur-Reply (Paper 9 (“Prelim. Sur-Reply”)).

We have jurisdiction under 35 U.S.C. § 314. Under § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the challenged claims in the petition.” *Id.* at § 314(a). Because we determine that Petitioner demonstrates a reasonable likelihood that at least one challenged claim is unpatentable, we institute an *inter partes* review of all claims as challenged in the Petition.

BACKGROUND

A. Real Parties-in-Interest and Related Matters

Petitioner identifies itself as the only real party-in-interest. Pet. 79. Patent Owner identifies itself as the only real party-in-interest. Paper 4 (“Patent Owner’s Mandatory Notices”), 1.

Petitioner filed a petition for *inter partes* review of another patent, U.S. Patent No. 11,194,039 B2 (“the ’039 patent”), in IPR2024-00829. Patent Owner’s Mandatory Notices 1. The ’602 patent at issue here and the ’039 patent are also the subject of co-pending district court litigation, *Kustom Signals Inc. v. Applied Concepts Inc.*, Case No. 3:23-cv-01937-N (N.D. Tex.) (filed August 30, 2023). Pet. 79; Paper 4, 1.

B. The '602 Patent

The '602 patent relates to a “Traffic Radar System with Patrol Vehicle Speed Detection” that includes “a first radar transceiver, a second radar transceiver, a speed determining element, and a processing element.” Ex. 1001, code (54), 2:1–3. Figure 2 shows a representative embodiment and is reproduced below.

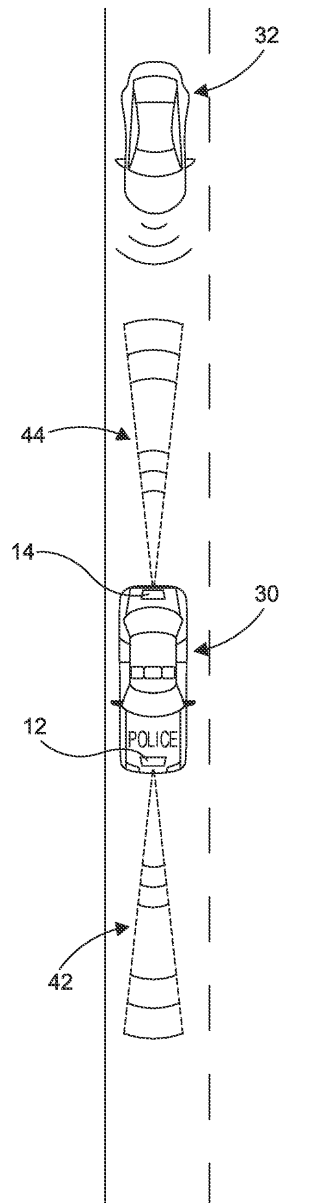


Fig. 2.

Figure 2 depicts “an environmental top view of a law enforcement patrol vehicle and a target vehicle,” the target vehicle equipped with a “traffic radar system 10” that includes “a front radar transceiver 12” and “a rear radar transceiver 14” to monitor speeds of target vehicles 32. *Id.* at 3:17–22, 4:7–16. Transceivers 12, 14 transmit radar beams and receive reflections of the radar beam at the front and back of the patrol vehicle, respectively. *Id.* at 1001, 4:29–5:24.

Radar system 10 also includes, among other components, “speed determining element 22” and “processing element 26.” *Id.* at code (57), 4:11–13. The ’602 patent states that speed determining unit 22 determines the speed of the patrol vehicle by receiving and processing radio frequency signals from a global navigation satellite system. *Id.* at 6:1–6. Processing element 26 first initializes speed determining element 22 and then speed determining unit 22 communicates satellite data messages to processing element 26 to determine the patrol vehicle speed. *Id.* at 7:13–42. Processing element 26 also receives “digital data samples derived from the first or second electronic signals” produced by the transceivers and analyzes that data to determine the speed of the target vehicle. *Id.* at code (57), 8:43–9:10.

After determining the speed of all target vehicles, processing element 26 displays the speeds on display 16 of the system’s main unit 24. *Id.* at 9:58–62. Display 16 also displays the patrol vehicle speed, and indicates whether speed determining element 22 verifies the patrol vehicle speed using methods independent from the patrol vehicle’s radar system. *Id.* at 9:64–10:4.

C. The Asserted Challenges

Petitioner challenges claims 1–15 on the following grounds (Pet. 2):

Claims Challenged	35 U.S.C. §	Basis
1–3, 6–11, 14, 15	103	Aker, ¹ Aker '724, ² Thomas ³
3–5, 11–13	103	Aker, Aker '724, Thomas, Carmichael ⁴
1–3, 6–11, 14, 15	103	Shelton, ⁵ Henderson, ⁶ Thomas
3–5, 11–13	103	Shelton, Henderson, Thomas, Carmichael
1–15	103	'039 Publication, ⁷ Jones ⁸

Petitioner refers to (1) the first two challenges based in part on Aker as grounds 1A and 1B; (2) the second two challenges based in part on Shelton as grounds 2A and 2B; and (3) the last challenge based on the '039 Publication and Jones as ground 3. *See* Pet. 2, 6. In support of these

¹ U.S. Patent Pub. No. 2004/0257268 A1, published December 23, 2004 (Ex. 1004, “Aker”).

² US 5,691,724, issued November 25, 1997 (Ex. 1007, “Aker '724”).

³ UK Patent App. No. GB 2 334 700 A, published January 9, 1999 (Ex. 1005, “Thomas”).

⁴ US Patent Pub. No. 2005/0146458 A1, published July 7, 2005 (Ex. 1006, “Carmichael”).

⁵ US 6,023,236, issued February 8, 2000 (Ex. 1008, “Shelton”).

⁶ US 5,528,246, issued June 18, 1996 (Ex. 1009, “Henderson”).

⁷ US 2019/0107619 A1, published April 11, 2019 (Ex. 1015, “the '039 Publication”). This publication later issued as the '039 patent (Ex. 1014). , We will use Petitioner’s nomenclature and refer to the reference as the '039 Publication.

⁸ US 5,898,400, issued April 27, 1999 (Ex. 1016, “Jones”).

challenges, Petitioner submits the Declaration of Dr. Brian W. Anthony. *See* Ex. 1003.

D. Challenged Claims

Among the challenged claims of the '602 patent, claims 1 and 9 are the only independent claims. Claim 9 is illustrative and recites:

[9.0] A traffic radar system comprising:

[9.1] a radar transceiver configured to transmit and receive radar beams in a front zone corresponding to an area in front of a patrol vehicle or in a rear zone corresponding to an area behind the patrol vehicle and to generate an electronic signal corresponding to the received radar beam;

[9.2] a speed determining element configured to receive and process radio frequency signals from a global navigation satellite system to determine and output a speed of the patrol vehicle; and

[9.3] a processing element configured to

[9.4] receive a plurality of digital data samples derived from the electronic signal,

[9.5] receive the speed of the patrol vehicle from the speed determining element,

[9.6] perform a time domain to frequency domain conversion on the digital data samples creating a plurality of frequency bins, each frequency bin associated with a frequency bin number, having a relative magnitude value, and corresponding to a speed of a vehicle,

[9.7] convert the speed of the patrol vehicle to a frequency bin number,

[9.8] form a patrol vehicle speed window that includes a range of frequency bin numbers having the frequency bin number of the converted patrol vehicle speed as a center of the range,

[9.9] determine at least one group of successive frequency bin numbers outside of the patrol vehicle speed window

whose relative magnitude is greater than a spike threshold value,

[9.10] convert one frequency bin number in each group to the relative speed of one target vehicle, and

[9.11] convert the relative speed of the target vehicle to an absolute speed using the speed of the patrol vehicle.

Ex. 1001, 22:65–23:32 (bracketed nomenclature added to reflect Petitioner’s nomenclature, *see* Pet. vii–viii).

ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner argues that one of ordinary skill in the art relating to the ’602 patent would have “a working knowledge of Doppler radar systems,” a “Bachelor of Science degree in an academic discipline emphasizing electrical, mechanical, instrumentation engineering or other disciplines related [to] measurement science,” and “specific training or at least one to two years of related work experience with Doppler radar systems.” Pet. 4 (citing Ex. 1003 ¶ 18). Petitioner asserts that one of ordinary skill could, alternatively, have a “Master of Science degree in electrical engineering with less than a year of related work experience in the same discipline.” Pet. 5 (citing Ex. 1003 ¶ 18). Patent Owner does not contest Petitioner’s proposal at this time. Prelim. Resp. 21–22. At this stage, and based on Petitioner’s undisputed contentions, we apply Petitioner’s proposed level of ordinary skill in the art.

B. Claim Construction

Pursuant to 37 C.F.R. § 42.100(b), we apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Under that standard, we give the words of a claim their plain and

ordinary meaning as would have been understood by one skilled in the art at the time of the invention and in the context of the entire patent disclosure. *Id.* at 1312–13. Only terms in controversy need be construed, and 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) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner advances two proposed constructions, the first applying to grounds 1A, 1B, 2A, and 2B, and a second construction applying to ground 3. Pet. 5–7. Petitioner’s proposed constructions apply to the following limitation recited in both independent claims 1 and 9: “a radar transceiver configured to transmit and receive radar beams in a front zone corresponding to an area in front of a patrol vehicle or in a rear zone corresponding to an area behind the patrol vehicle.” *See id.*

The first construction Petitioner proposes construes the claim phrase as “**a radar transceiver configured to transmit and receive radar beams [either] in a front zone . . . or in a rear zone [but not both].**” Pet. 6 (modifications in Pet.). According to Petitioner, the specification supports its “interpretation by describing a ‘front radar transceiver’ that ‘may be mounted or installed on the forward portion of the patrol vehicle’ and that transmits radar beams ‘in front of the patrol vehicle,’” and describes the separate “rear radar transceiver” in a similar manner. *Id.* (citing Ex. 1001, 4:29–5:24; Ex. 1003 ¶ 24).

Petitioner’s second proposed construction, which only applies to ground 3, construes the phrase as “**a radar transceiver configured to transmit and receive radar beams [both] in a front zone . . . or in a rear**

zone corresponding to an area behind the patrol vehicle.” Pet. 7 (modifications in Pet.). According to Petitioner, Patent Owner advanced such a proposed construction in the co-pending district court litigation, where “the claimed radar transceiver is configured to transmit and receive radar beams both in a front zone or in a rear zone, which requires the radar transceiver to be directional.” *Id.* at 6–7. Petitioner argues that such a construction for this limitation does not have written description support throughout the chain of applications that led to the issuance of the ’602 patent, which would render one of the prior patents in the priority chain prior art to the ’602 patent. *Id.* at 7.

Patent Owner argues that Petitioner “fails to explain why either of its proposed interpretations is required to understand the plain English language of the limitation,” “fails to clearly explain its different proposed meanings of the limitation,” and fails to show “why one construction should be adopted over the other.” Prelim. Resp. 17–18. Patent Owner also argues that even if Petitioner’s second construction applies, the ’602 patent does not lack written description support. *Id.* at 18–20.

Based on this preliminary record, we agree with Petitioner that its first proposed construction more naturally follows from the claim language and specification. That construction reads the limitation as requiring a “a radar transceiver configured to transmit and receive radar beams” either “in a front zone . . . or in a rear zone,” but does not require a single transceiver configured to transmit and receive radar beams in both the front and rear zones. *See* Pet. 6. Based on this record, the specification supports this approach because it describes separate transceivers operating in the front zone and rear zone of the patrol vehicle. *See* Ex. 1001, 4:29–5:24; *see also*

Fig. 2 (showing front radar transceiver 12 associated with first radar beam 42 and separately showing rear radar transceiver 14 associated with second radar beam 44).

Patent Owner argues that we need not reach this issue because Patent Owner's current arguments against grounds 1A, 1B, 2A, and 2B do not turn on this issue. We disagree, because Petitioner premises its arguments for grounds 1A, 1B, 2A, and 2B on its proposed construction, and without that premise whether the proposed combinations satisfy the claim limitations remains unclear. Patent Owner also argues that Petitioner fails to explain why one construction should apply but not the other. Prelim. Resp. 17. We again disagree. Petitioner argues that the specification supports its first construction, and Petitioner appears to set forth its second, alternative construction as a backup argument in the event that Patent Owner raises the same construction in this proceeding as it did in the co-pending district court litigation. *See* Pet. 6–7. Petitioner does not state that the specification supports its second construction and does not set forth any analysis in support of its second construction. *See id.* Notably, Patent Owner does not explain in any detail, or with supporting argument based on the intrinsic record, why either of Petitioner's proposed constructions lacks support, and neither party attempts to support Petitioner's second construction, which we do not adopt at this time. Under these circumstances, we are reluctant to consider adopting Petitioner's second construction, which neither party describes as the correct construction, and we therefore need not address the priority or written description disputes that stem from that construction.

The parties may continue to address these issues during trial. If Patent Owner continues to argue against our use of Petitioner's first construction in

this proceeding, Patent Owner should explain in detail its own proposed construction and the support in the record for that construction.

C. Obviousness based on Aker, Aker '724, and Thomas

Petitioner argues that claims 1–3, 6–11, 14, and 15, would have been obvious over the combination of Aker, Aker '724, and Thomas.” Pet. 7–31. Patent Owner argues that the challenge fails due to a lack of motivation to combine the references. *See* Prelim. Resp. 24–36. We first provide a brief overview of the prior art and then address the parties’ arguments.

1. Overview of Aker, Aker '724, and Thomas

Aker discloses a traffic radar system that employs Doppler radars “with direction sensing capability” in which reflected radar signals “are digitized and the samples are processed by a digital signal processor programmed to find one or more selected target speeds.” Ex. 1004, code (57), ¶¶ 1, 6. Aker employs microwave antenna 10 “to transmit outgoing radar beams and receive reflected radar energy from moving and stationary objects,” and the reflected energy is used to calculate target speed. *Id.* at code (57), ¶ 42. In a preferred embodiment, Aker employs two antennas “located on the front and rear of the patrol car.” *Id.* ¶¶ 56–57.

Aker states that the speed of the patrol car “can be determined from the car’s speedometer (as opposed to processing returns from stationary objects such as the ground),” and states that “an optional speedometer link transducer 59 provides a signal or data to the DSP from which the indicated speed on the speedometer can be determined for use in moving mode target speed calculations.” Ex. 1004 ¶ 51. Aker also states that further details as to the operation of the radar system can be found in Aker '724 patent, which

Aker incorporates by reference. *Id.* ¶ 4; *see also id.* ¶¶ 52–54, 84, 94, 110 (referring to Aker ’724).

Aker ’724 contains many of the same teachings as Aker, and provides additional details as to the digital signal processor used to process samples from the radar. *See* Ex. 1007, code (57), 22:1–6, 23:41–63. Aker ’724 states that patrol car speed can be obtained from speedometer interface 424 or Doppler radar readings from the ground. *Id.* at 20:34–40.

Thomas relates to a device that seeks to restrict vehicle speed automatically when it exceeds a speed limit. Ex. 1005, code (57). The device includes controller 10 having receiver 12 that receives signals from global positioning satellites so that controller 10 can calculate vehicle speed using GPS data. *Id.* at 2:8–10, 4:33–5:3; 7:7–8:1. Controller 10 outputs the “current-vehicle-speed signal” to a comparator which compares it to a speed limit signal. *Id.* at 4:33–5:16.

2. Discussion

We begin with Petitioner’s argument that the combination of Aker, Aker ’724, and Thomas renders independent claim 9 obvious. *See* Pet. 13–26. For each limitation in claim 9, Petitioner points to specific portions of the references that support its position that the combination discloses the limitations in question. *See id.* Petitioner also cites to declarant testimony addressing the limitations. *See id.* (citing Ex. 1003). In the combination, Petitioner relies on the traffic radar system of Aker, as further detailed in Aker ’724, as modified by Thomas’s teaching of a controller that includes a GPS receiver to provide the current speed of the patrol vehicle. *See* Pet. 9–10. In the proposed combination, Petitioner states that the patrol vehicle speed based on GPS data (from Thomas’s controller) feeds “GPS data to the

‘speedometer link transducer 59’ of the DSP in the counting display unit disclosed in Aker.” *Id.* at 9 (citing Ex. 1003 ¶ 32).

Although Patent Owner raises arguments against the combination of Aker, Aker ’724, and Thomas, Patent Owner does not directly dispute that Petitioner’s proposed combination discloses all of the limitations of claim 9. *See* Prelim. Resp. 24–36. Based on our review of the current record, Petitioner adequately establishes that its proposed combination of Aker, Aker ’724, and Thomas discloses all of the limitations of claim 9. *See* Pet. 13–26.

The primary dispute between the parties centers on Petitioner’s proposed combination of Thomas’s GPS speedometer data with the traffic radar system that Aker⁹ discloses to ascertain the patrol vehicle’s speed. Petitioner argues that it would have been obvious to modify the radar system in Aker “to receive current vehicle speed data from a GPS-enabled speedometer, as taught by Thomas” because Aker does not limit determining the current vehicle speed “to any specific type of speedometer and thus is compatible with a GPS speedometer.” *Id.* at 11 (citing Ex. 1003 ¶ 36; Ex. 1004 ¶¶ 54, 61, 99). Petitioner further asserts that modifying Aker with

⁹ Petitioner argues that “[e]ven if the text of Aker ’724 were not part of Aker by virtue of Aker incorporating ‘the full contents’ Aker ’724 by reference, a POSITA would nonetheless have been motivated to obtain more information when implementing the traffic radar system described in Aker, and would have been directed to Aker ’724 by Aker’s specific instructions.” Pet. 10. Patent Owner does not dispute this aspect of the combination. *See* Prelim. Resp. 24–28. We agree with Petitioner that Aker in effect includes Aker ’724 by virtue of its express references to and incorporation of it, and Petitioner’s basis for combining the references. *See id.* For ease of reference, we will refer to “Aker” broadly to refer to both references unless the details of one disclosure are relevant to the discussion.

Thomas's GPS-enabled speedometer "obviat[es] the need for a separate speed sensor input," which Thomas allegedly describes as beneficial because said sensors are "largely mechanical and tend to be complex and expensive to fit to a vehicle." *Id.* at 11 (citing Ex. 1005, 1:12–13). Petitioner also highlights Thomas's GPS-based speedometer as a potential backup "in the event of an issue with the existing speedometer" and further highlights Thomas's own teaching of "the ease with which its GPS speedometer can be incorporated into a vehicle." *Id.* at 11 (citing Ex. 1003 ¶ 37; Ex. 1005, 4:5–16, 4:30–31). Petitioner further argues that its proposed modification "entails the use of known solutions to improve similar systems and methods in the same way," incorporates known techniques from Thomas "to achieve the predictable benefits disclosed in Thomas," and would predictably work and provide expected results. *Id.* at 12–13 (citing Ex. 1003 ¶¶ 38–39).

Patent Owner argues that one of ordinary skill in the art would find no motivation to combine Aker and Aker '724 with Thomas, that Petitioner misconstrues Thomas, and, instead, that Thomas teaches away from the disclosures in Aker. Prelim. Resp. 24–36. First, Patent Owner argues that Aker does not allow for the use of *any* speedometer, as alleged by Petitioner, but rather the speedometer "must be sufficiently accurate for its intended purpose—determining the patrol vehicle's speed." *Id.* at 25. Patent Owner contends that "within the confines of the accuracy required for law enforcement use of the radar systems, a [person of ordinary skill in the art ("POSA")] would require a reason to select a GPS based speedometer solution" and that the ease of using GPS-based speedometer does not establish "that a POSA *would be* motivated to combine Thomas with the Aker references." *Id.*

Second, Patent Owner argues that Petitioner fails to establish that Thomas addresses the problems addressed by the '602 patent because Thomas does not demonstrate the utility of its GPS speedometer in a law enforcement context. *Id.* at 26. Patent Owner also argues that Petitioner misleadingly interprets Thomas to suggest that it teaches the use of GPS speedometers to avoid the use of complex and expensive speed sensors. *Id.* at 27–28.

Third, Patent Owner argues that Thomas's use of GPS is not suitable for, and teaches away from, the proposed use with Aker. More specifically, Patent Owner asserts that Aker prefers the accuracy of Doppler radar signals to determine the patrol vehicle's speed instead of the vehicle's speedometer because it is not sufficiently accurate. *Id.* at 11–12, 29–30 (citing Ex. 1007, 20:38–40) (“The software . . . does not use the actual speedometer speed as the patrol speed because this is not accurate enough.”); Ex. 1007, 20:42–55 (explaining that Aker '724's “software also includes the ability to compare the calculated patrol speed from the return selected . . . to the speed read from the speedometer, and, if the difference is greater than 3 MPH, to discard the calculated patrol speed and re-calculate it from a different radar return.”). Patent Owner then presents numerous calculations suggesting that Thomas's GPS speedometer is less accurate than what Aker allows for when determining the speed of the patrol vehicle. Prelim. Resp. at 31–36 (explaining that “[t]hese [GPS] receivers allow determination [of] a vehicle position to within about 50–100 meters,” which can be increased to “about 10 meters” if “a differential radio receiver unit” is connected, and later calculating that such accuracy level “far exceed[s] Aker '724's maximum 3

mph variance” such that “a POSA would be taught away from using GPS” in Aker) (citing Ex. 1005, 11:15–21, 17:11–15).

Patent Owner also cites to U.S. Patent No. 7,444,240 (“MacNielle”) to highlight the inaccuracies inherent in a GPS speedometer. Prelim. Resp. 35–36 (describing “system errors” in GPS speedometers that include “synchronization errors between satellites, synchronization errors with a central clock, inaccuracies in Satellite PVT data, number of visible satellites at any given time, Velocity and timing aspects within the satellites, and accuracy of the timing signal shape,” among other inaccuracies). Thus, according to Patent Owner, one skilled in the art would not combine Aker with Thomas because the speedometer in Thomas is not accurate enough.

In its Reply, Petitioner argues that Patent Owner improperly imbues the claims with an accuracy requirement not recited in the claims or specification of the ’602 patent. Prelim. Reply 1. Petitioner argues that

inaccuracy of speed is allowed under claims 1 and 9, reciting that “the processing element [is] configured to . . . form a patrol vehicle speed *window that includes a range of frequency bin numbers*,” which according to the specification may “correspond to the converted patrol vehicle speed frequency bin number plus 5 mph and minus 5 mph.”

Id. at 1–2 (citing Ex. 1001, 9:20–21). Petitioner also casts doubt on Patent Owner’s GPS speedometer error calculations and asserts that, using Petitioner’s calculation adjustments, the inaccuracy range would fall within the range allowed in the ’602 patent. *Id.* at 2–3. In its Sur-Reply, Patent Owner alleges that Petitioner improperly argues obviousness issues instead of claim construction and attacks Petitioner’s adjustments to the error calculations. Prelim. Sur-Reply 1–3.

Based on the current record, Petitioner sufficiently establishes for the purposes of institution that one of ordinary skill in the art would have been motivated to combine Aker, Aker '724, and Thomas in the manner Petitioner proposes. *See* Pet. 9–13. Patent Owner's arguments do not undermine Petitioner's showing on these issues, based on the current record, for several reasons.

First, Patent Owner premises its arguments on detailed assertions as to how one of ordinary skill in the art would interpret the teachings of the references, and then includes detailed calculations based on those teachings. *See* Prelim. Resp. 24–36. None of these assertions are supported by any testimony from one of ordinary skill in the art, and, on this record, amount to mere attorney argument. *See id.* For example, even if Patent Owner's calculations are arithmetically correct, Patent Owner does not explain or provide evidence that a skilled artisan would gauge the accuracy of GPS for law enforcement based on Patent Owner's asserted calculations and “baseline” assumptions. *See id.* at 28–29. While expert testimony is not required at any stage of these proceedings, Patent Owner's arguments here fail to undermine Petitioner's arguments and evidence, which include currently un rebutted testimony from one of ordinary skill in the art. *See, e.g.,* Pet. 9–13 (citing Ex. 1003 ¶¶ 31–33, 35–40).

Second, the specifics of Patent Owner's arguments do not justify denial of institution, based on the current record. Patent Owner does not dispute that using GPS to determine the speed of a vehicle as Thomas teaches could be easily incorporated into Aker's system. Instead, Patent Owner focuses almost entirely on the lack of accuracy when using the GPS approach. As Petitioner points out, the claims do not require a specific level

of accuracy and appear to allow for some degree of inaccuracy. *See* Prelim. Reply 1–2. In addition, Patent Owner does not argue for a claim construction that requires a specific level of accuracy. Prelim. Resp. 17–21. Even if accuracy concerns militate against the proposed combination to some degree, Patent Owner does not assert, with probative evidence, that a specific level of accuracy must be achieved in this art and how the proposed combination fails to meet that standard such that use of GPS for speed readings would be rejected despite their ready availability. *See id.* at 24–36. These arguments, based on the current record, do not undermine Petitioner’s reasons for its proposed combination. Final resolution of these highly factual disputes based on interpretations of the references and the standards in the art are best resolved after further development during trial.

Third, Patent Owner’s argument that Petitioner misconstrues Thomas when it argues that Thomas prefers GPS sensors over other complex and expensive sensors, even if true, would not warrant denial of institution. *See id.* at 26–28. The Board questions whether Thomas describes the use of a separate speed sensor as “complex” and “largely mechanical” as Petitioner asserts, or, as Patent Owner posits, whether Thomas describes a separate throttle mechanism to control vehicle speed as “complex” and “largely mechanical.” *See* Pet. 11–13; Prelim. Resp. 26–28; Ex. 1005, 5:8–14. Nonetheless, Petitioner’s motivation to combine argument does not rest entirely on this isolated assertion and, even if we disagreed with Petitioner’s assertion here, Petitioner’s remaining arguments and evidence would support institution. *See* Pet. 7–11.

Fourth, we are not persuaded by Patent Owner’s teaching away argument, based on the current record. *See* Prelim. Resp. 28–36. Patent

Owner does not support its argument with citations to Aker disparaging the use of GPS to obtain speed, or the inaccuracy of such a system generally, or citations to Thomas disparaging the accuracy of its GPS approach or its suitability for use in a patrol car. *See id.* Instead, Patent Owner appears to argue that the Aker references disclose two methods for obtaining speed, show a preference for one method as more accurate, and Thomas’s GPS method provides no more accuracy than the method Aker disparages. *See id.* Patent Owner’s arguments rely on inferences drawn by one of ordinary skill in the art when reading the references and error calculations to determine the suitability of GPS-based speed readings. *See id.* While these arguments may ultimately prevail, they do not appear to reach the threshold of “teaching away” from Petitioner’s proposed combination. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (“[T]he prior art’s mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed.”).

In summary, based on the preliminary record, we determine that Petitioner satisfied their burden of showing that a person of ordinary skill would have been motivated to modify Aker’s patrol vehicle speedometer with Thomas’s GPS speedometer with sufficient reasoning and facts. *Cf. KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 417, 418 (2007) (stating that, to facilitate an analysis of an obviousness position, the proponent should provide “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

3. Conclusion

Petitioner adequately establishes that one of ordinary skill in the art would have been motivated to combine Aker, Aker '724, and Thomas, and that the resulting combination discloses all of the limitations of claim 9, and therefore establishes a reasonable likelihood of proving that Aker, Aker '724, and Thomas render claim 9 obvious. We have also reviewed Petitioner's arguments addressing claims 1–3, 6–8, 10, 11, 14, and 15 subject to this challenge, which Patent Owner does not separately address. *See* Pet. 26–31; Prelim. Resp. 24–36. Based on our review of the current record, Petitioner also establishes a reasonable likelihood of proving that claims 1–3, 6–8, 10, 11, 14, and 15 would have been obvious over Aker, Aker '724, and Thomas.

D. Remaining Challenges

Petitioner argues that dependent claims 3–5 and 11–13 would have been obvious over the combination of Aker, Aker '724, Thomas, and Carmichael. Pet. 31–37. Petitioner also challenges claims 1–3, 6–11, 14, and 15 as obvious over Shelton, Henderson, and Thomas and claims 3–5 and 11–13 as obvious over Shelton, Henderson, Thomas, and Carmichael. *Id.* at 61–67. Petitioner provides specific reasons to combine Shelton, Henderson, and Thomas and separate reasons for adding Carmichael to the proposed combinations. *See id.* 37–67.

Patent Owner generally raises the same arguments against use of Thomas in the Shelton/Henderson combination as it does against the use of Thomas in the Aker/Aker '724 combination. *See* Prelim. Resp. 24–36. Patent Owner reserves its ability to raise any arguments relying on Carmichael for trial. *Id.* at 15 (Petitioner “does not use Carmichael in any

grounds challenging the independent claims of the '602 patent. If the Board ultimately institutes a trial in this proceeding, [Patent Owner] will address [Petitioner's] grounds relying on Carmichael at that time.”).

The parties' disagreements as to the suitability of adding Thomas to the Shelton/Henderson combination raise a number of factual issues best addressed after a further development during trial. Because Petitioner already demonstrates that at least one claim of the '602 patent meets the threshold for institution, we institute an *inter partes* review of all claims as challenged in the Petition, including these challenges. *See* 37 C.F.R. §§ 42.108(a), (c); *SAS Inst. v. Iancu*, 138 S. Ct. 6668, 1359–60 (2018).

In its ground 3, Petitioner argues, based on its second proposed construction of independent claims 1 and 9 (discussed above), that claims 1–15 are obvious over the '039 Publication and Jones. Specifically, Petitioner argues that “if the ‘radar transceiver’ limitation of claims 1 and 9 of the '602 Patent . . . is construed to mean that the radar transceiver must be configured to ‘transmit and receive radar beams’ from *both of the front zone or the rear zone*, then the limitation is not supported by” the '039 Publication because the '039 Publication only discloses “separate” transceivers for the front and rear zones of the patrol vehicle. Pet. 67–68 (parentheticals omitted, emphasis added). Petitioner combines the '039 Publication with Jones, which describes “a ‘velocity/speed measurement radar unit’ that ‘incorporates a handle assembly for detachment from a base unit to allow for convertibility from a hand-held unit to a remote controlled radar unit.’” *Id.* at 69 (citing Ex. 1016, code [57]). Patent Owner counters by arguing, as it does in its claim construction arguments, that “the '039 patent disclosure is

not prior art, which dooms Ground 3.” Prelim. Resp. 40 (emphasis in Prelim. Resp.).

For the reasons discussed above in our claim construction analysis, we decline to adopt Petitioner’s second proposed construction that forms the basis of its arguments for ground 3. Accordingly, based on the current record, we do not view the ’039 Publication as prior art to the ’602 patent and question whether Petitioner’s challenge based in part on the ’039 Publication has merit. Nevertheless, because Petitioner demonstrates that at least one claim of the ’602 patent meets the threshold for institution, we institute an *inter partes* review of all claims as challenged in the Petition, including the challenge based on the ’039 Publication and Jones. *See* 37 C.F.R. §§ 42.108(a), (c); *SAS*, 138 S. Ct. at 1359–60. In addition, because claim construction remains an open issue and our views may change, the parties may continue to address the merits of this challenge during trial.

CONCLUSION

We institute an *inter partes* review of all claims as challenged in the Petition.

ORDER

Accordingly, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–15 of the ’602 patent is *instituted*; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of trial, which will commence on the entry date of this Decision.

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