

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AXON ENTERPRISE, INC. and DEDRONE HOLDINGS, INC.,  
Petitioner,

v.

AIRSPACE SYSTEMS, INC.,  
Patent Owner.

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IPR2025-00525  
Patent 10,713,959 B2

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Before MICHAEL R. ZECHER, BARRY L. GROSSMAN, and  
SCOTT C. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

PRELIMINARY GUIDANCE  
PATENT OWNER'S MOTION TO AMEND  
*37 C.F.R. § 42.121(e)*

## I. INTRODUCTION

On October 8, 2025, we instituted trial as to claim 21 of U.S. Patent No. 10,713,959 B2 (Ex. 1001, the “’959 patent”). Paper 13. After institution, Patent Owner filed a Non-Contingent Motion to Amend, with proposed substitute claim 22. Paper 16 (“Motion” or “Mot.”). Petitioner filed an Opposition. Paper 21 (“Opp.”).

In the Motion, Patent Owner requested that we provide preliminary guidance concerning the Motion in accordance with 37 C.F.R. § 42.121(a)(1)(ii). Mot. 1; *see* 37 C.F.R. § 42.121(e)(1); *see also Rules Governing Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board*, 89 Fed. Reg. 76,421 (Sept. 18, 2024) (“Final Rule”). We have considered Patent Owner’s Motion and Petitioner’s Opposition.

In this Preliminary Guidance, we provide information indicating our initial, preliminary, non-binding views on whether Patent Owner has shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend in an *inter partes* review and whether Petitioner establishes a reasonable likelihood that the substitute claims are unpatentable. 37 C.F.R. § 42.121(e)(1), (2); *see also* 35 U.S.C. § 316(d) (statutory requirements for a motion to amend); 37 C.F.R. § 42.121(a)(2), (a)(3), (b) (regulatory requirements and burdens for a motion to amend); *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential) (providing information and guidance regarding motions to amend). The reasonable likelihood standard this Preliminary Guidance applies is different than the preponderance of the evidence standard applied when ultimately deciding the Motion. *Compare* 37 C.F.R. § 42.121(e)(1) *with* § 42.121(d). Finally, this preliminary guidance is not a

“decision” for purposes of rehearing under 37 C.F.R. § 42.71(d). 37 C.F.R. § 42.121(e)(2).

For purposes of this Preliminary Guidance, we focus on proposed substitute claim 22, and specifically on the amendments proposed in the Motion. *See* 37 C.F.R. § 42.121(e)(1); Final Rule, 89 Fed. Reg. at 76,425. We do not address the patentability of the originally challenged claim. *See id.* Moreover, in formulating our preliminary views on the Motion and Opposition, we have not considered the parties’ other substantive papers on the underlying merits of Petitioner’s challenges. We emphasize that the views expressed in this Preliminary Guidance are subject to change upon consideration of the complete record, including any revision to the Motion filed by Patent Owner. Thus, this Preliminary Guidance is not binding on the Board when rendering a final written decision or any other subsequent decision in this proceeding. 37 C.F.R. § 42.121(e)(2); *see Medytox, Inc. v. Galderma S.A.*, 71 F.4th 990, 1000 (Fed. Cir. 2023).

## II. PRELIMINARY GUIDANCE

### A. Statutory and Regulatory Requirements

Patent Owner bears the ultimate burden to show that its motion to amend complies with the requirements of 35 U.S.C. § 316(d)(1), (3) and 37 C.F.R. § 42.121(a)(2), (a)(3), (b)(1), and (b)(2). 37 C.F.R. § 42.121(d)(1). For the reasons discussed below, at this stage of the proceeding, and based on the current record, it appears that Patent Owner has not shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend. *See* 37 C.F.R. § 42.121(e)(1).

#### 1. Reasonable Number of Substitute Claims

A motion to amend must propose a reasonable number of substitute claims. 35 U.S.C. § 316(d)(1)(B); 37 C.F.R. § 42.121(a)(3). Patent Owner has shown it

proposes a reasonable number of substitute claims by proposing a single substitute claim (i.e., claim 22) for original claim 21. *See* Mot. 1–2, Claims App.; *see also* 37 C.F.R. § 42.121(a)(3) (“The presumption is that only one substitute claim would be needed to replace each challenged claim, and it may be rebutted by a demonstration of need”). Petitioner does not argue otherwise. *See* Opp.

## 2. Respond to Ground of Unpatentability

A motion to amend must respond to a ground of unpatentability involved in the proceeding. 37 C.F.R. § 42.121(a)(2)(i). Patent Owner has responded to the grounds of unpatentability involved in this proceeding by presenting arguments explaining why the newly added limitations in proposed substitute claim 22 overcome the prior art in those grounds. *See* Mot. 2, 11–12. Petitioner does not argue otherwise. *See* Opp.

## 3. Scope of Amended Claims

A motion to amend may not enlarge the scope of the claims of the patent. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii). Patent Owner asserts that the Motion does not enlarge the scope of the claims of the ’959 patent because the Motion only adds narrowing limitations to original claim 21, aside from making a “typographical correction.” *See* Mot. 2, Claims App.

Petitioner contends the alleged typographical correction in proposed substitute claim 22—“wherein the radio communication module is configured to receive a [[received]] radio signal and store the received information in a storage” (Mot., Claims App.)—improperly enlarges the scope of original claim 21. *See* Opp. 1. In particular, Petitioner asserts proposed substitute claim 22 “contemplates receiving *any* ‘radio signal’ (‘receive *a* radio signal’).” Opp. 1.

At this juncture, we determine proposed substitute claim 22 does not impermissibly broaden the scope of the claims of the '959 patent. The original language of claim 21—"receive a received radio signal"—appears to be redundant, because in order to receive a radio signal, it would have to be a *received* radio signal. Thus, while proposed substitute claim 22 removes the word "received" from the phrase at issue, it does not change the meaning of the phrase within the context of the claim.<sup>1</sup> Accordingly, based on the current record, Patent Owner has shown by a reasonable likelihood that it has not enlarged the scope of the claims.

#### 4. New Matter

A motion to amend may not introduce new subject matter. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii). In particular, a motion to amend must show "support in the original disclosure of the patent for each proposed substitute claim." 35 C.F.R. § 42.121(b)(1); *see also Lectrosonics*, IPR2018-01129, Paper 15, 7 ("[T]he Board requires that a motion to amend set forth written description support in the originally filed disclosure of the subject patent for each proposed substitute claim . . .").

The test for satisfying the written description requirement "is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Patent Owner's Motion provides citations to U.S. Patent Application

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<sup>1</sup> Patent Owner may consider, however, whether such language would be useful in distinguishing the radio signal the radio communication module is configured to receive from the "transmitted radio signal," to the extent this contributes to the definiteness of proposed substitute claim 22. *See infra* § 2.B.I.

No. 16/215,406 (Ex. 2015, the “’406 application”), from which the ’959 patent issued, for each limitation in proposed substitute claim 22.<sup>2</sup> *See* Mot. 2–10.

Petitioner contends Patent Owner’s identified portions of the ’406 application fail to provide written description support for the proposed substitute claim 22 feature of “a radio communication module . . . configured to transmit identification information associated with the low-altitude aircraft” and “to utilize a secure identifier,” where “utilizing the secure identifier comprises transmitting the secure identifier to the remote portable detection system for cross-verifying the secure identifier and the transmitted identification information, to verify authenticity of the transmitted identification information.” Opp. 1–7; Mot., Claims App. On the current record, we agree with Petitioner that Patent Owner has not shown adequate written description support in the ’406 application for this limitation.

Upon review of Patent Owner’s citations, we see no disclosure to support a radio communication module configured to utilize a secure identifier by transmitting it to a remote portable detection system for cross-verifying with different transmitted identification information. Patent Owner points to a disclosure in the ’406 application of a system in which an electronic identification box of an aircraft may include a light array and a transponder. Mot. 5–6; Ex. 2015, 3:4–5. “The transponder may transmit a code similar to the one generated (e.g., blinked) by the light arrays but through the [radio frequency (“RF”)] frequency,

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<sup>2</sup> As discussed in our Decision on Institution, we have determined that U.S. Provisional Patent Application No. 62/175,153, filed June 12, 2015 (Ex. 1007, the “’153 Provisional”) does not contain adequate support the “secure identifier” limitation of claim 21. *See* Paper 13, 12–15. Proposed substitute claim 22 contains this unsupported limitation. Thus, in this Preliminary Guidance, we will focus on Patent Owner’s citations to specification support in the subsequent ’406 Application.

allowing automatic identification by any RF receiver on land, or installed in other aircrafts.” Ex. 2015, 3:14–16. Specifically, the system “includes a remote (e.g., ground) device to assist the aircraft identification,” where “the ground device is equipped with a camera, lens and image processing algorithms to capture the color sequence. In addition, this ground device has an RF receiver capable of receiving the identification box RF signal to connect both information sources and to verify the authenticity.” *Id.* at 4:14–20; *see also id.* at 8:28–29. Although the ’406 application here discloses codes transmitted in different ways, we see no disclosure that either code is a “secure identifier,” as we preliminarily construed the term in the Decision on Institution. *See* Paper 13, 9 (“the recited ‘secure identifier’ is a credential that can be used to securely verify the identity of a device, such as an airborne object or a ground-based transmitter”).

Moreover, we emphasize that proposed substitute claim 22 requires that the “radio communication module” is configured to transmit both the “identification information” and the “secure identifier.” *See* Mot., Claims App. Patent Owner does not explain how disclosure in the ’406 application in which “a light array that blinks a defined color pattern sequence” and a separate transponder that “may transmit a code similar to the one generated (e.g., blinked) by the light arrays but through RF frequency” (Ex. 2015, 2:28–29, 3:14–15) supports the claimed arrangement of a single “radio communication module” for transmitting two different pieces of information—the “identification information” and the “secure identifier.” In other words, even if either the code transmitted via the light array or the code transmitted by the transponder could be considered a “secure identifier,” Patent Owner has not shown the ’406 application discloses the “radio communication module” transmitting both the “identification information” and the “secure identifier.”

Patent Owner additionally points to disclosure in the '406 application in which the ground device can send commands to the identification box of the aircraft, after which “the identification box 1 sends the execution results (e.g. an ACK, or an error status code) to the ground identification unit 21 through the RF module 16 and it can also change the color sequence to show the result visually.” Mot. 9; Ex. 2015, 10:26–11:8. Patent Owner’s citation to this disclosure in the '406 application is unavailing, as responding to a ground-based command with a status, even if through both visible light and RF frequency signals, adds nothing to the disclosure already discussed with respect to the claimed subject matter at issue, which relates to cross-verifying distinct pieces of information for authentication purposes.

Accordingly, Patent Owner has not shown a reasonable likelihood that the original disclosure of the '959 patent, as identified in the '406 application, provides adequate written description support for all the limitations of proposed substitute claim 22.

#### B. Unpatentability Arguments by Petitioner

Petitioner bears the ultimate burden to show that any proposed substitute claims are unpatentable. 37 C.F.R. § 42.121(d)(2). For the reasons discussed below, at this stage of the proceeding, and based on the current record,<sup>3</sup> it appears that Petitioner has shown a reasonable likelihood that proposed substitute claim 22 is unpatentable. *See* 37 C.F.R. § 42.121(e)(1).

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<sup>3</sup> We express no view on the patentability of original claim 21 in this Preliminary Guidance. Instead, we focus on limitations added in Patent Owner’s Motion.

### 1. Indefiniteness

Petitioner contends proposed substitute claim 22 is indefinite because it is unclear whether the limitation “to receive a radio signal” refers to receiving the previously recited “transmitted radio signal” or another radio signal. Opp. 7. Petitioner also contends the limitation “the received information” renders claim 22 indefinite because it lacks antecedent basis. *Id.* at 7–8. At this juncture, we are not persuaded there is a reasonable likelihood claim 22 is indefinite.

In post-grant proceedings the Board applies the indefiniteness standard set forth in *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014). See Memorandum: Approach to Indefiniteness Under 35 U.S.C. § 112 in AIA Post-Grant Proceedings (Jan. 6, 2021) (*available at* <https://www.uspto.gov/sites/default/files/documents/IndefinitenessMemo.pdf>). Under *Nautilus*, a claim is indefinite if it fails to “inform those skilled in the art about the scope of the invention with reasonable certainty.” 572 U.S. at 910. At this stage, we disagree with Petitioner that the disputed language renders proposed substitute claim 22 indefinite.

Upon reading the ’959 patent, one of ordinary skill in the art would likely be reasonably certain that the limitation “to receive a radio signal” introduces a new limitation. Not only is the received “radio signal” element identified by the indefinite article “a,” indicating it is not relating back to another element, but one of ordinary skill in the art would not have reasonably considered the received “radio signal” to potentially refer, specifically, to the “transmitted radio signal” that carries “identification information.” It is the “radio communication module” that is configured to transmit the “transmitted radio signal” and to receive the other “radio signal.” In the context of claim 22, one of ordinary skill in the art would not likely have understood the “radio communication module” as configured to

transmit and receive its own signal such that the “transmitted radio signal” and received “radio signal” might possibly be the same element.

Upon reading the ’959 patent, one of ordinary skill in the art also would likely be reasonably certain that the limitation of storing “the received information” relates to the received “radio signal,” and not the “identification information” in the “transmitted radio signal,” for a similar reason to that noted above. That is, one of ordinary skill in the art would not likely have understood the “received information” to be the same information as the “identification information,” because the “radio communication module,” in the context of claim 22, would not be used to receive information that it has itself transmitted.

Although we determine, at this juncture, that Petitioner has not shown a reasonable likelihood that proposed substitute claim 22 is indefinite, Patent Owner may consider submitting a revised motion further clarifying the scope of the claim, in light of the issues discussed above, particularly, where the terms “radio signal” and “information” are each used in reciting different elements.

## 2. Obviousness

### i. Ground 5—Obviousness over Beard and Viggiano

Proposed substitute claim 22 recites the following newly added limitations:

wherein, utilizing the secure identifier comprises transmitting the secure identifier to the remote portable detection system for cross-verifying the secure identifier and the transmitted identification information, to verify authenticity of the transmitted identification information.

Mot., Claims App.

For Ground 5, Petitioner contends proposed substitute claim 22 would have been obvious over Beard (Ex. 1008), as asserted in Ground 1 in the Petition, and the newly asserted reference Viggiano (Ex. 1024).

In particular, with respect to the newly added limitations quoted above, Petitioner asserts that in the proposed Beard-Viggiano combination, “Beard’s RF transceiver transmits a message authentication code (MAC) 38 to Beard’s receiver,” where “MAC 38 is a *secure identifier*.” Opp. 12–13 (citing Ex. 1008, 3:30–36, 5:41–57, 7:11–17, 8:39–42, 9:8–12, 9:67–10:20; Ex. 1009, 3–8, 11, 15; Ex. 1023 ¶ 61). Specifically, Petitioner asserts Viggiano’s “MAC 38 is formed by identification information 22 that identifies the transmitting aircraft, as well as secret key 36 which is ‘unique’ to the aircraft.” *Id.* at 13 (citing Ex. 1024 ¶¶ 12–15, 19–27, Figs. 1–3; Ex. 1023 ¶ 61). Further, Petitioner asserts that the Beard-Viggiano “combination teaches the MAC 38 (*secure identifier*) is received by the receiver, which then compares the MAC 38 to another MAC 58 that is formed from the separately transmitted identification signal 32, to ‘authenticate’ transmitter identity.” *Id.* According to Petitioner, one of ordinary skill in the art “would have understood that the identification information 32 and identification information 22 that respectively form each MAC would have been cross verified with each other, and that this process would have authenticated the identity of the transmitter [unmanned aerial vehicle (“UAV”)].” *Id.*

In combining Beard and Viggiano, Petitioner reasons that one of ordinary skill in the art “would have been so motivated because the use of false or fraudulent identify information by a UAV was [a] known problem,” and “Viggiano addresses this problem and further’s Beard’s own verification teachings, providing a specific technique for aircraft identity verification.” Opp. 10 (citing Ex. 1024 ¶ 4; Ex. 1023 ¶ 57).

For the reasons explained in the Opposition and highlighted above, at this stage, and based on the current record, we determine that Petitioner has shown a reasonable likelihood that proposed substitute claim 22 would have been obvious based on the proposed combination of Beard and Viggiano.

- ii. Grounds 6–8—Obviousness over (6) Taveira, Wang, Gong, and Viggiano, (7) Taveria, Qi, Gong, and Viggiano, and (8) Gong, Wang-II, and Viggiano

For Grounds 6–8, Petitioner contends proposed substitute claim 22 would have been obvious over each of the combinations asserted in Grounds 2–4 in the Petition (i.e., obviousness over (2) Taveria, Wang, and Gong, (3) Taveria, Qi, and Gong, and (4) Gong and Wang-II), with the addition of Viggiano. Petitioner provides similar reasons to those noted above as to why each of these grounds would have rendered proposed substitute claim 22 obvious, particularly, by relying on Viggiano in a similar way. *See* Opp. 14–18. At this stage, we determine Petitioner has shown a reasonable likelihood that proposed substitute claim 22 would have been obvious based on Grounds 6–8.

- iii. Ground 9—Obviousness over Beard and Byers

For Ground 9, Petitioner contends proposed substitute claim 22 would have been obvious over Beard, as asserted in Ground 1 in the Petition, and the newly asserted reference Byers (Ex. 1025).

In particular, in the proposed Beard-Byers combination, Petitioner asserts that “Beard’s RF transceiver transmits an encrypted radio identity data and additional radio identity data to Beard’s receiver,” and “[t]he receiver compares the encrypted radio identity data and the additional radio identity data . . . to determine a match and authenticate the UAV.” Opp. 21–22 (citing Ex. 1008, 3:30–36, 5:41–57, 7:11–17, 8:39–42, 9:8–12, 9:67–10:20; Ex. 1009, 3–8, 11, 15; Ex. 1023 ¶ 76);

*see also id.* at 18–19 (citing Ex. 1025, 4:38–44, 5:9–51, 5:58–6:46, 6:61–7:8, 7:61–8:2, 8:65–9:47, 9:66–10:5, 10:30–39, 10:40–61, Figs. 3, 4). Specifically, Petitioner asserts that “[t]he encrypted radio identity data (*secure identifier*) is used in this authentication process described above to authenticate the UAV, and because the radio identity data is encrypted, it teaches the Board’s construction of *secure identifier*.” *Id.* at 22.

According to Petitioner, the proposed combination of Beard and Byers requires first combining two different embodiments in Byers, and then combining this hybrid embodiment with Beard. *See Opp.* 18–20. Petitioner reasons that one of ordinary skill in the art would first “have been motivated to combine the Figure 3 and Figure 4 embodiments [in Byers] such that the encrypted radio identity data and, *instead* of the optical identity data, the additional radio identity data, are compared to each other to determine a match to authenticate the UAV.” *Id.* at 19 (citing Ex. 1025, 5:9–51, 5:58–6:46, 7:61–8:2, 8:65–9:24, 9:66–10:5, 10:30–39, 10:53–61, Figs. 3, 4; Ex. 1023 ¶ 72). Petitioner further reasons that one of ordinary skill in the art would then have combined this Byers modification and Beard with “the predictable result in which Beard’s [unmanned aircraft system] RF transceiver transmits encrypted radio identity data and additional radio identity data to Beard’s receiver, which compares the data to determine a match and authenticate the UAV.” *Id.* at 19–20 (citing Ex. 1008, Abstract, 3:30–36, 4:61–5:7, 5:41–57, 8:39–42, 9:8–12, 10:12–20; Ex. 1009, 3–8, 11; Ex. 1025, 5:9–51, 5:58–6:46, 7:61–8:2, 8:65–9:24, 9:66–10:5, 10:30–39, 10:53–61, Figs. 3, 4; Ex. 1023 ¶ 73).

While it appears Petitioner has accounted for all the elements of proposed substitute claim 22 and provides sufficient explanation to show a reasonable likelihood of success in proving obviousness, we nevertheless advise the parties

that at this juncture, it appears that the Beard-Byers ground is less persuasive than the Beard-Viggiano ground discussed above. In contrast to the Beard-Byers combination, the Beard-Viggiano combination relies on a complete embodiment described in Viggiano and proposes to readily combine the teachings from this embodiment with Beard. *See* Opp. 9–14.

- iv. Grounds 10–12—Obviousness over (10) Taveira, Wang, Gong, and Byers, (11) Taveria, Qi, Gong, and Byers, and (12) Gong, Wang-II, and Byers

For Grounds 10–12, Petitioner contends proposed substitute claim 22 would have been obvious over each of the combinations asserted in Grounds 2–4 in the Petition (i.e., obviousness over (2) Taveria, Wang, and Gong, (3) Taveria, Qi, and Gong, and (4) Gong and Wang-II), with the addition of Byers. Petitioner provides similar reasons to those noted above as to why each of these grounds would have rendered proposed substitute claim 22 obvious, particularly, by relying on Byers in a similar way. *See* Opp. 22–25. At this stage, we determine Petitioner has shown a reasonable likelihood that proposed substitute claim 22 would have been obvious based on Grounds 10–12.

### III. CONCLUSION

This concludes our Preliminary Guidance. Patent Owner has the option to reply to this Preliminary Guidance *or* to file a revised MTA by DUE DATE 3. 37 C.F.R. § 42.121(e)(3), (f); Paper 14, 10–11, 13. Patent Owner’s reply or revised MTA may only respond to this Preliminary Guidance or Petitioner’s Opposition and may be accompanied by new evidence (including declarations). 37 C.F.R. § 42.121(e)(3). Petitioner has the option to file a sur-reply responsive to this Preliminary Guidance, Patent Owner’s reply, or Patent Owner’s revised MTA but may not present new evidence in any case. 37 C.F.R. § 42.121(e)(3).

Petitioner may also file a reply to the preliminary guidance in the case Patent Owner does not file a reply or revised MTA. 37 C.F.R. § 42.121(e)(4).

In addition, Patent Owner is reminded that amendments of the challenged claim may also be pursued in a separate reissue or reexamination proceeding before, during, or after an *inter partes* review proceeding, including subsequent to the issuance of the Final Written Decision. We draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of 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).

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