

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CLEARCORRECT OPERATING LLC,
Petitioner,

v.

ALIGN TECHNOLOGY, INC.,
Patent Owner.

Case No. IPR2025-00817
Patent No. 10,791,936

PATENT OWNER'S SUR-REPLY

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I. INTRODUCTION

Petitioner's obviousness case fails for a fundamental reason—a key limitation of the challenged claims is wholly missing from the prior art: *replac[ing] at least a portion of the removed [user-identified] surface portion of the model with second scan data including surface data of a physically changed portion of the patient's intraoral cavity*.¹ The petition relied on Boerjes as allegedly teaching this limitation. Pet., 21; *see also* Paper 8, 1 & n.1, 4-5. However, in its institution decision, the Board found Boerjes lacks the alleged disclosure and, instead, instituted trial based on the petition's alternative ground applying Boerjes in combination with Geng. Inst. Dec., 19, 24.

Now, the record is fully developed, and solely in Align's favor. In response to the petition and institution decision, Align submitted expert testimony that not only confirmed the Board's preliminary finding that Boerjes "does not teach or suggest" the claimed replacement operation but also showed how Geng likewise fails to provide that element of the claims. With the element in question absent from both references, Petitioner necessarily fails to meet its burden with the combination of Boerjes and Geng as a matter of law. Instead of disclosing the claimed replacement process, both references teach the conventional approach of

¹ Consistent with Align's response, claim language is italicized throughout.

obtaining a new scan following physical modification. The post-institution record has only strengthened the Board's preliminary decision and even Petitioner's reply concedes that Geng itself does not teach the limitation. Faced with this one-sided record, Petitioner's reply simply rehashes its failed petition theory that Boerjes teaches the missing element and substitutes attorney argument for evidence. These deficiencies are dispositive: Petitioner identifies no prior-art teaching of the claimed replacement operation, singly or in any reasonable combination, and therefore fails to meet its burden of proving unpatentability. Petitioner's contrary arguments rely on mischaracterizations of Align's response, unsupported assumptions, improper hindsight reasoning, and improper burden-shifting, none of which cure the absence of the replacement limitation.

II. GROUNDS 1-2 FAIL

A. Petitioner Still Fails to Show Boerjes Teaches Replacing a User-Identified Portion of a 3D Model with Post-Modification Scan Data

The Board correctly determined that Boerjes fails to teach replacing a user-identified portion of a 3D model with second scan data of a physically changed portion of a patient's intraoral cavity. Inst. Dec., 18-19. Petitioner repeats its petition arguments in view of an evidentiary record that has only deteriorated for their assertion—cherry-picking disparate parts of Boerjes to manufacture a teaching that is not there. *See Reply*, 3-10. Rather than present any reply

declaration from its expert responding to Dr. Foroosh, or any other new evidence of its own, Petitioner instead resorts to mischaracterizing Align's response and relies on impermissible hindsight to read unsupported functionality into Boerjes. As explained below, the Board correctly saw through Petitioner's misrepresentations of Boerjes, the record reinforces the Board's initial conclusion regarding Boerjes, and nothing in the record undermines the Board's initial findings.

1. Petitioner's reply mischaracterizes Align's response arguments

Petitioner's reply repeatedly mischaracterizes Align's response in an effort to "rebut" Align's showing that Boerjes fails to teach the claimed invention. Contrary to Petitioner's assertions, Align never conceded that Boerjes discloses partial replacement in a 3D model of erroneous or inadequate scan data. Nor did Align argue that Boerjes requires a rescan of the entire mouth.

Addressing Petitioner's self-serving but misguided reading of Boerjes, Align noted that Petitioner conflated distinct teachings described in Boerjes—one directed to new scanning to replace apparently erroneous or inadequate scan data, and another of a new scan of the dental subject matter following additional surface preparation (*i.e.*, the alleged physical modification). *See* POR, 23-24. In reply, Petitioner mischaracterizes this to mean that "Align agrees that Boerjes discloses partial replacement in some contexts," in particular, "when there is an inadequate

scan.” Reply, 2; *see also id.*, 5 (contending “Align does not dispute ... that Boerjes discloses replacing erroneous or inadequate scan data where the scan is deficient”). However, nothing in the cited portions of Align’s response supports the inference that Align “agrees” that Boerjes teaches replacing a portion of the 3D model itself with new scan data, even in the case of an inadequate scan. To the contrary, Align expressly disputed Petitioner’s contentions and argued Boerjes does not describe identifying a particular portion of a 3D model to be replaced with new scan data generally. *See* POR, 15 (“Boerjes does not describe identifying a particular portion of a model to be replaced with new scan data.”); *see also, generally*, 14-19. In effect, because Align’s response focuses on the aspect of Boerjes that the petition relied on for its unpatentability theory (*i.e.*, scanning after additional surface preparation), Petitioner incorrectly imagines an alleged admission regarding aspects of Boerjes that are unrelated to that challenge (*i.e.*, scanning in the case of erroneous or inadequate data).

Petitioner is well-aware that Align’s response made no such admission because this was dispelled during cross-examination of Align’s expert, Dr. Foroosh. During that deposition, Petitioner questioned Dr. Foroosh on whether he agreed that Boerjes’s discussion of “new scanning to replace apparently erroneous or inadequate scan data” (EX1004, [00199]) meant “replacing a targeted portion of the digital model that has erroneous data.” EX1056, 171:13-172:14. Dr. Foroosh

confirmed that it did not, noting that even in this case, Boerjes teaches that “a new digital model is obtained.” *Id.*, 172:12-174:16 (quoting EX1004, [00199]) (further explaining Boerjes “doesn’t say insert or update or produce [a] composite model,” “[i]t says, obtain digital models”). Indeed, Dr. Foroosh repeatedly explained his opinions during his deposition, leaving no basis for Petitioner’s present mischaracterization of Align’s arguments. *See, e.g., id.*, 44:15-51:22 (Boerjes does not teach “compositing two scans into a single model”), 134:7-137:12, 139:19-141:21, 192:17-195:10, 200:9-201:5, 204:7-21, 250:13-254:16 (“Boerjes is not teaching compositing ... two models. It’s not teaching either that if there is erroneous data, that we should composite the two models.”). Petitioner does not meaningfully engage with Dr. Foroosh’s testimony and instead disregards it, incorrectly asserting that Align “agrees” that Boerjes teaches replacing a portion of the 3D model itself with new scan data “at least in some contexts.” *See id.*, 2.

Petitioner also distorts other aspects of Align’s response. For example, Petitioner argues that “Align reads the phrase ‘a new scan of the dental subject matter’ in Boerjes’s ¶199 as referring to the *entire* dentition.” *Id.*, 5-6 (emphasis original); *see also id.*, 1 (characterizing Align’s response as requiring “an ‘entirely new’ scan of the whole dentition”). Based on this reading of Align’s arguments, Petitioner argues that because Boerjes teaches that a scan may capture “some or all of the dentition,” then Boerjes contemplates a partial rescan of “the dental subject

matter” for compositing with the original model. *Id.*, 5-6. Petitioner’s reply, however, sets up a strawman by presupposing that Align reads Boerjes as stating that the original scan is of the patient’s “whole dentition.” Instead, Align simply noted what Boerjes plainly teaches: performing “a new scan of the dental subject matter” (*i.e.*, the portion of the dentition captured in the original scan) following “additional surface preparation.” EX1004, [00199]. Consistent with Boerjes’s teachings, a model of “the dental subject matter” can itself be “some or all of the dentition.” *See* POR, 27-28. Nothing in Boerjes suggests targeting specific portions of the original 3D model for replacement to create a composite model. Petitioner’s contrary interpretation again reflects an attempt to read into Boerjes functionality that is not disclosed.

2. Petitioner’s reply engages in hindsight that is unsupported by Boerjes

Beyond the issues with Petitioner’s misrepresentations of Align’s position, Petitioner also continues to engage in impermissible hindsight to support its misreading of Boerjes. In particular, Petitioner alleges that Align’s so-called “two-alternatives theory” “produces absurd results” because it “would squander the very efficiency gains Boerjes seeks to achieve, including reducing chair time and improving patient comfort.” Reply, 7. According to Petitioner, reading Boerjes as teaching what it says—*i.e.*, performing a new scan of the dental subject matter after additional surface preparation—“would force a skilled person to discard

satisfactory model data whenever a local surface preparation is corrected.” *Id.*, 1-2.

Petitioner’s arguments are unavailing because they read into Boerjes the particular efficiencies taught by the ’936 patent as compared to conventional approaches. Boerjes describes its efficiency gains as the result of using “real time feedback” during quality control. EX1004, [00190], [00198]; *see also* Reply, 7 (citing same). According to Boerjes, its feedback approach avoids the need for a patient to return to the dental office for a follow-up scan, instead allowing for a second scan in the same visit. EX1004, [00198] (quality control steps “may advantageously be performed while a dental patient is still present at the dental office”). This does not undermine the fact that, when describing that follow-up scan, Boerjes still teaches the conventional approach of rescanning the dental subject matter to obtain a new model, which the ’936 patent recognized led to its own inefficiencies (by, *e.g.*, “forc[ing] a skilled person to discard satisfactory model data whenever a local surface preparation is corrected,” Reply, 1) and which the claimed invention solves. By arguing that the approach taught by Boerjes is “absurd” because it would lead to the very inefficiencies that only the ’936 patent recognized and sought to solve, Petitioner engages in impermissible hindsight by using the ’936 patent’s own inventive path to map Boerjes to the challenged claims. *See In re Dembizak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (using the

inventor's disclosure "as a blueprint for piecing together the prior art to defeat patentability [is] the essence of hindsight").

Similarly, Petitioner's assertion that "if quality control identifies both scan and preparation deficiencies in the model, Align's theory would leave a person with no option" is unsupported and also demonstrates impermissible hindsight. Reply, 7-8. Logically, by following Boerjes's teachings of performing a new scan following additional surface preparation, the user would be able to address "both scan and preparation deficiencies" with the new scan. There is nothing in Boerjes to indicate that a POSITA would be left "with no option." By characterizing Align's arguments in this way, Petitioner again demonstrates its hindsight-driven reading of Boerjes to include post-modification replacement of a portion of a 3D model, despite the lack of any such disclosure.

In sum, the record confirms the Board's institution findings that Boerjes fails to teach replacing a user-identified portion of a 3D model with post-modification scan data.

B. Petitioner Does Not Dispute that Geng Fails to Teach Replacing a User-Identified Portion of a 3D Model with Post-Modification Scan Data

Turning to Geng, Petitioner's reply confirms that Geng fails to cure the deficiencies of Boerjes. As explained in Align's response, the petition did not purport to rely on Geng as teaching replacing a user-identified portion of a model

with second scan data of a physically changed portion of a patient's intraoral cavity. POR, 36-37. Petitioner's expert, Dr. Karam, tried to cure this during cross-examination, but Align demonstrated why her testimony failed and Geng still failed to teach the limitation. *Id.*, 38-39. In reply, Petitioner concedes as much and does not dispute Align's characterizations of the petition nor does Petitioner attempt to defend (or adopt) its expert's cross-examination testimony regarding Geng. *See Reply*, 11-15. Thus, there is no dispute that Geng fails to teach replacing a user-identified portion of a model with second scan data of a physically changed portion of a patient's intraoral cavity.² Like Boerjes, Geng merely teaches the conventional approach of performing a new scan after a change to a physical structure in the mouth, rather than replacing a targeted portion of the original model.

² Petitioner incorrectly argues that "Align's response fails to confront" the Board's findings that "Geng supplies ... missing features" from Boerjes and its findings regarding "Petitioner's rationale for combining Boerjes and Geng," making these findings "unchallenged." *Reply*, 3. Petitioner is incorrect. Align specifically raised Petitioner's failure to show that Geng teaches the missing limitations (which is now undisputed by the parties) and directly addressed the lack of support in Petitioner's rationale to combine. *See POR*, 19-21, 36-40, 40-44.

Despite conceding that Geng does not teach the missing limitation (*see* Reply, 12), Petitioner nevertheless argues that “Align improperly attacks Boerjes and Geng individually” and “fail[s] to address the Boerjes-Geng *combination*.” Reply, 11 (emphasis original). However, Align **has** addressed the combination by demonstrating that **neither** reference teaches the at-issue limitation, and thus, logically, their combination (absent impermissible hindsight) does not result in the claimed invention. Indeed, Petitioner’s reply confirms that the Boerjes-Geng combination rests solely on its rationale to combine to supply the missing limitation. *See* Reply, 11 (“If, as Align contends, Boerjes alone does not teach partial replacement after additional surface preparation, the Boerjes-Geng combination teaches that in Ground 2.”), 12 (“Align argues that ‘Geng itself’ does not teach replacing a portion of a model after a physical change as in limitation 1[h]. ... But Ground 2 does not rely on Geng alone.”), 15. However, a determination of obviousness requires that “all claimed limitations are disclosed in the prior art.” *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014); *see also University of Strathclyde v. Clear-Vu Lighting LLC*, 17 F.4th 155, 159, 161-62 (Fed. Cir. 2021) (reversing Board’s obviousness determination when it found that “the combined teachings” of two references taught exposing bacteria to blue light without using a photosensitizer to inactivate bacteria, where neither reference taught inactivating bacteria without using a photosensitizer).

Because Boerjes and Geng do not disclose all claimed limitations—even in combination—Petitioner’s obviousness case fails as a matter of law.

Moreover, Petitioner’s reply arguments regarding Geng demonstrate that its combination is an improper hindsight attempt to conjure a missing limitation undeniably not found in either reference. For example, Petitioner disputes Dr. Foroosh’s testimony that a POSITA would have understood Geng’s editor tool as merely serving a cleanup function because Geng teaches that its editor tool allows an operator to “eliminate any undesirable area(s) on the original 3D image.” Reply, 13 (emphasis omitted). But Dr. Foroosh explained how this is consistent with a cleanup function and does not suggest using the tool or developing a fundamentally new tool for the purpose of replacing a user-identified portion of a 3D model with new scan data. EX2011, ¶61. Petitioner’s reply showcases that its combination rests on the notion that simply because Geng’s tool can be used to eliminate areas of model, then it could be used for a purpose that neither Boerjes nor Geng teaches—to replace a portion of a 3D model with new scan data. *See* POR, 14-21. This is not found in the prior art, individually or in any reasonable combination. This again is improper hindsight.

Petitioner also argues that Align “attempts to limit Geng’s merger tool to ‘image acquisition and construction **during** a scanning operation’” and contends that “nothing in Geng limits the merger tool to that context.” Reply, 13 (emphasis

original). Petitioner thus acknowledges that Geng does not teach using its merger tool in the manner proposed. Instead, Petitioner asserts that merely because Geng does not expressly limit its tool to the purpose it describes, then Petitioner is free to propose its use for any other purpose. But the proposed functionality is found nowhere in the cited art. Again, this is inappropriate hindsight.

Further, Petitioner attempts to justify its hindsight-driven rationale by misleadingly stating that Align “concedes that Geng’s editor and merger tools can be used a part of Boerjes’s system,” but Petitioner misses the point of Align’s argument. Reply, 14 (citing POR, 13-14, 22). Align was simply pointing out that, even if Geng’s editing and merger tools could be used as part of Boerjes’s system, this still would not lead to the claimed invention because **neither reference** suggests using such tools to replace a portion of an original model with new scan data after additional surface preparation has been performed. *See* POR, 13-14, 22. Indeed, Petitioner fails to rebut Align’s evidence establishing that, like Boerjes, Geng also teaches following the known, conventional approach of obtaining a scan of a prepared tooth surface, performing additional preparation, and then performing a new scan of the final prepared surface, without compositing models. *See* EX1005, 10:64-11:2, 11:16; EX2011, ¶¶99-101. Petitioner’s only response is attorney argument that simply disagrees with Align and fails to provide any evidence that undermines Align’s showing, supported by expert testimony, that

Geng teaches nothing beyond the conventional approach. *See* Reply, 14 (arguing “Geng nowhere teaches performing the alleged ‘conventional approach’” and “Geng does not describe the ‘final 3D image’ as a complete rescan”); *id.* (arguing, without explanation, correction of “artifact data” in the final 3D model somehow “suggests the opposite” of the conventional approach); *cf.* EX2011, ¶101 (Dr. Foroosh providing detailed analysis of Geng). Simply put, Petitioner cannot rely on the absence of an express restriction in Geng to justify importing new and undisclosed uses of its tools or the development of fundamentally new tools for use with Boerjes’s system.

As a last resort, Petitioner argues that Align “improperly relies on a rejected legal standard by looking for an express teaching of motivation to combine in Geng itself.” Reply, 14. This distracts from the issue. The issue is not whether the cited references provide an express teaching/suggestion/motivation for the combination, but the more fundamental defect in the petition case that there are claim limitations never found in the prior art in the first place, alone or in combination. As explained above, Boerjes and Geng are both missing the same critical aspects of the claims. Moreover, because **both** Boerjes and Geng teach nothing beyond the conventional approach of obtaining a new scan after physical modification, Petitioner’s entire case is predicated on imagining a claim element by combining the references in a way that neither suggests. Such a hindsight-

driven rationale cannot overcome the lack of disclosure necessary for Petitioner to meet its burden.

C. With No Teachings in the Applied Art, Petitioner Resorts to Hand-Waving and Improper Burden-Shifting

Left with nothing in the applied references that teach replacing a user-identified portion of a 3D model with post-modification scan data, Petitioner is left to hand-wave the limitation into existence. For example, with respect to Boerjes, Petitioner's reply alleges, for the first time, that a POSITA would have understood that Boerjes "at least suggests" partial replacement of a 3D model and also resorts to "an ordinary artisan's creativity" to bridge this glaring and fundamental gap in the prior art. *See* Reply, 8, 10. For Boerjes and Geng, Petitioner invokes vague notions of "efficiency and patient comfort," despite neither reference teaching the thing Petitioner alleges would provide such improvements. *See id.*, 14-15.

Petitioner's arguments amount to gap-filling a missing limitation using motivation alone. But invoking a generic motivation, such as "an ordinary artisan's creativity" and "to improve efficiency," cannot be used to supply a missing claim limitation. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361-63 (Fed. Cir. 2016) (reliance on generic gap-filling assertions improper, except in very limited circumstances). This is especially true where, as here, "the missing limitation goes to the heart of [the] invention" (*id.*, 832 F.3d at 1363), and both references follow

the conventional approach that the claimed invention addresses and improves upon.

Furthermore, in an attempt to avoid its own burden in establishing obviousness, Petitioner also engages in improper new argument and burden-shifting. For example, Petitioner argues that “[t]he Board’s prior determination that similar claims of the parent ’192 patent are unpatentable undercuts Align’s attempt to portray the challenged claims as inventive.” Reply, 19. Petitioner alleges the Board’s findings in the IPR involving the ’192 patent “contradict Align’s assertions that the prior art taught only a ‘conventional approach’ of taking entire rescans after a physical modification.” Reply, 20 (emphasis omitted). However, the IPR involving the ’192 patent involved a different set of claims and a different set of grounds involving different references. Here, Petitioner advances obviousness challenges based on Boerjes and Geng, which, as Align explained, teach following the conventional approach of rescanning the entire physical item after a physical modification. *See* POR, 3, 11, 14, 25, 40-44. The issues in this proceeding thus are centered around whether Petitioner has met its burden in proving that **Boerjes and Geng** teach the limitations of the claimed invention. *See SAS Inst. Inc. v. Iancu*, 584 U.S. 357, 364 (2018) (holding it is petitioner who “define[s] the contours of the proceeding”).

Even so, Petitioner also fails to demonstrate that the '192 patent IPR “contradict[s] Align’s assertions.” Reply, 20. Petitioner omits that the '192 patent IPR involved Paley (EX1008) and Kriveshko (EX1007) as the primary ground references. *See* EX1026, 3-4; Reply, 20 (citing EX1026, 23-26, 29-32, 43-48). These same references were considered by the Examiner during prosecution of a related patent³ and were assessed against, and found to be distinct from, nearly identical claim language recited in the presently challenged claims. EX2014, 9, 12 (requiring “the second 3D intraoral scan data including surface data of a physically changed portion of the patient’s intra-oral cavity”); POR, 9-10. The more salient history includes the Examiner here finding the prior art at the time taught away from what is claimed and a subsequent rejection of an IPR challenge against this patent.⁴ *See* POR, 8-11. Thus, prior adjudication by the Office in this case only

³ Notably, during prosecution of the '936 patent, the Examiner issued an obviousness-type double-patenting rejection that applied this related patent; the Examiner did not apply the '192 patent. *See* EX1002, 88-96.

⁴ Petitioner does not dispute that this included Kriveshko (EX2007), which shares the same assignee and priority claim as Boerjes. POR, 8-9 & n.1. Nor does Petitioner dispute the Examiner’s finding that Kriveshko “describes an iterative approach to managing a preparation where ‘a dentist may repeat steps of tooth

confirms that the conventional approach to post-modification scanning differentiates from what is claimed and weighs against Petitioner's challenge here, especially as it applies to Boerjes and Geng lacking key claimed elements.

Desperate to sidestep an evidentiary record in Align's favor, Petitioner also argues that the Board should give Dr. Foroosh's testimony little or no weight, alleging that his testimony (1) "applied an incorrect, overly narrow claim interpretation" and (2) "is incomplete, unreliable, and lacks the reasoned technical analysis." Reply, 21-26. Petitioner's allegations are baseless because they essentially amount to a complaint that his opinions were limited to the specific theories and assertions made by Dr. Karam and did not address the nonobviousness of the challenged claims under any and all theories that could have been raised. This again is another improper burden-shift.

As to Petitioner's first argument, Petitioner contends Dr. Foroosh's testimony should be accorded no weight because he allegedly "applied an incorrect, overly narrow claim interpretation that limited the claimed physical change to additional tooth preparation." Reply, 21. According to Petitioner, in addition to "additional surface preparation," the petition "discussed ... other

removal and scanning until a satisfactory surface preparation is achieved.'"

EX1002, 374-75 (citing EX2007, [0121]-[0122]).

examples of physical change, such as removal of saliva, blood, or debris from a tooth,” which Petitioner faults Dr. Foroosh for not addressing. *Id.*, 21-23; *see also id.*, 8.

This is a red herring that distracts from the case presented in the petition. It was **the petition** that mapped the claimed *physically changed portion of the patient’s intraoral cavity* to Boerjes’s “regions that require ‘**additional surface preparation or reduction**.’” Pet., 40-41 (discussing limitation 1[g]) (emphasis added); *see also* EX1003, ¶107 (mapping same). As Dr. Karam opined, “a ‘preparation’ or ‘surface preparation’ refers to the process of shaping and treating a tooth structure before placing a prosthesis, such as a crown, to ensure proper retention, and fit of the prosthesis.” EX1003, ¶38. Nowhere in its discussion of limitations 1[g]-1[h] did Petitioner identify other alleged types of physical changes, such as “removal of saliva, blood, or debris from a tooth,” as mapping to the claim language. *See* Pet., 40-51 (identifying only “additional surface preparation” as a physical change); EX1003, ¶¶106-23 (same); *cf.* Reply, 22 (citing to other portions of the petition, including ’936 patent summary, background, and dependent claim analysis). Thus, rather than apply an “overly narrow claim interpretation,” Dr. Foroosh was simply responding to the case laid out by Petitioner—that is, whether Boerjes’s discussion of scanning in cases where “additional surface preparation or reduction” has occurred teaches the claim limitation. Whether the recited

physically changed portion allegedly encompasses scenarios other than the one Petitioner specifically mapped to the claim limitation at issue does not alleviate Petitioner's burden in proving the case it chose to advance in the petition. *See Netflix, Inc. v. DivX, LLC*, 84 F.4th 1371, 1377 (Fed. Cir. 2023) (noting that the Board should "not have to decode a petition to locate additional arguments beyond the ones clearly made"). Dr. Foroosh is not required to address new theories introduced for the first time in reply or during cross-examination.

As to the second argument, Petitioner argues that Dr. Foroosh's testimony should be disregarded as "incomplete, unreliable, and conclusory" because "Dr. Foroosh repeatedly emphasized that he was not providing independent skilled-artisan opinions, but only responding to Dr. Karam." Reply, 23. Petitioner further complains that Dr. Foroosh "declined to address the proper scope of 'physical change'" or opine on "ordinary technical questions about dental image processing, and image registration" to Petitioner's satisfaction. *Id.*, 24-25. But it is not Dr. Foroosh's (nor Align's) burden to prove nonobviousness. *In re Magnum Oil Tools Int'l Ltd.*, 829 F.3d 1364, 1375-76, 1378 (Fed. Cir. 2016) (holding "the ultimate burden of persuasion of obviousness must remain on the patent challenger" and reversing decision where "the Board improperly shifted the burden to [patent owner] to disprove obviousness"). As noted above, Dr. Foroosh addressed Petitioner's and Dr. Karam's specific assertions regarding Boerjes teachings and

how its teachings map to the challenged claims. He explained his disagreement with key aspects of Dr. Karam's testimony and why the petition failed to show obviousness. Simply because Dr. Foroosh did not engage in Petitioner's efforts to fix its own failed petition case during cross-examination does not lead to the conclusion that his testimony should be discounted.

D. Petitioner Fails to Establish the Obviousness of Claim 9

Petitioner's arguments regarding claim 9 further illustrate additional deficiencies. First, Petitioner contends that Align's explanation that Boerjes fails to disclose receiving user input identifying a portion of the displayed model to be replaced with new scan data is "at odds with Align's own admission that Boerjes teaches identifying portions with inadequate scan data for replacement." Reply, 15 (citing POR, 18). However, the cited portion of the POR is consistent with Align's point: Boerjes is silent with respect to receiving user input that identifies a portion of the displayed model to be replaced with new scan data. POR, 18. Because Boerjes is silent in this respect, it is therefore also silent on *receiving user input via the displayed model demarcating a portion of the model to be retained and a surface portion of the model to be replaced*, as recited in claim 9. POR, 45.

Second, Petitioner defends its use of "background references" as allegedly "demonstrating that user-driven demarcation of regions on a displayed 3D dental model was known, and applying such techniques in Boerjes would have been

obvious.” Reply, 16. But the claims do not generally recite “user-driven demarcation of regions on a displayed 3D dental model.” Instead, the claims recite that user input demarcates the portion of the model that is *to be retained* and the portion that is *to be replaced*. Petitioner does not dispute Align’s showing that neither of the cited references teaches that this particular feature was well-known, as was alleged in the petition. *See* POR, 45-46 (citing Pet., 59). Thus, in addition to Boerjes lacking disclosure of this feature, Petitioner also fails to show that this feature was well-known in the art.

Finally, Petitioner contends that “Align attempts to turn an ordinary and intuitive user-interface implementation into purported patentable significance” and once again falls back on assertions that dismiss the limitation as obvious by repeating its general assertions that a POSITA “would have found it useful” to implement the recited feature in Boerjes. Reply, 16-17. This is hindsight—Petitioner contends that the claimed feature would be useful despite failing to identify a reference that actually teaches the claimed feature. *See* POR, 46-47. Such conclusory assertions are insufficient to satisfy Petitioner’s burden.

III. GROUNDS 3-4 FAIL

In addition to Petitioner’s failures regarding Grounds 1-2, Petitioner’s reply fails to rebut the deficiencies demonstrated in Align’s response with respect to Grounds 3-4. Petitioner’s reply backs away from the petition’s theory regarding

motivation to add Babayoff to the combination, which is not only improper but leaves them without expert testimony supporting its current argument. In addition, Petitioner cannot overcome its misunderstanding of Babayoff as it impacts their contentions for claims 7, 13, and 17.

First, Petitioner argues that the petition's proffered motivation to combine Boerjes (or Boerjes and Geng) with Babayoff is sufficient because "[i]t is enough to show that Boerjes suggests using color-scan data, Babayoff discloses a known and suitable color intraoral scanner, and that a skilled person would have reasons to use that known scanner architecture." Reply, 17-18. However, the petition said something different, making the positive assertion that "Babayoff's intraoral scanner **would improve**" Boerjes's system "by providing color data for presenting an accurate 3D color model" as forming the basis for its rationale to combine Boerjes and Babayoff. Pet., 75 (emphasis added); *see also* EX2013, 37:3-39:24 (Dr. Karam confirming combination involved **adding** color scanning via Babayoff). Petitioner does not dispute (or even respond to) Align's evidence establishing that Boerjes's system already captures color data for its 3D digital model, and thus, using Babayoff's intraoral scanner would not "improve" Boerjes. POR, 49-50. Rather than defend the rationale advanced in the petition, Petitioner now abandons it by arguing a new, more general rationale that relies on an alleged "suggest[ion]" to use color-scan data in Boerjes and turning to Babayoff as "a

known and suitable color intraoral scanner.” Reply, 17-18. Not only is this improper, it also effectively concedes that the motivation to combine advanced in the petition was, and remains, deficient. *See Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821, F.3d 1359, 1369-70 (Fed. Cir. 2016) (“[T]he expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute.”).

Second, Petitioner’s reply also fails to rebut the showing that Petitioner’s Grounds 3-4 combination fails to teach *discard[ing] a remainder of the received second scan data, the remainder including the identifying surface data*, as recited in claims 7, 13, and 17. As an initial matter, Petitioner does not dispute that neither Boerjes nor Geng teaches that its stitching processes result in excess data or that there is a need to discard excess data, which undermines any assertion that a POSITA would have turned to Babayoff in the first place. Reply, 18 (merely repeating the petition arguments).

Moreover, Petitioner fails to respond to Align’s response argument that Babayoff does not teach “it was well known to discard a remainder of received second data” and a POSITA would have been motivated to discard the identifying surface data, “as taught in Babayoff, because they would be repetitive,” as was asserted in the petition. Pet., 78-79; *see also* Reply, 19 (citing same). Instead, Petitioner asserts that Align’s response “mischaracterizes the Petition” because

Align allegedly “frames the combination as discarding repeated data points that have ‘one-to-one correspondence,’” rather than discarding “the overlapping portion of the second scan data, which includes the ‘corresponding points or features’ (‘identifying data’), because that portion would become redundant once alignment and stitching are complete.” Reply, 18-19.

However, this assertion just confirms the inadequacies of Petitioner’s challenge. As noted in the response, Babayoff teaches discarding only the data points that are repeated within the overlapping portion of scan data and, notably, **retaining** those that are not. POR, 53-54. Petitioner does not dispute this point (*see* Reply, 18-19) and, in doing so, Petitioner concedes that the premise of its combination—that a POSITA would discard “the overlapping portion of the second scan data ... because that portion would become redundant” (*id.*, 19)—is false because Babayoff itself teaches retaining data within that portion, which contradicts Petitioner’s own assertion that a POSITA would have viewed the overlapping portion as “redundant.” As Dr. Foroosh explained, this is true under any circumstances but is made more salient in scenarios where the second scan data represent a temporally distinct scan, which would make it highly unlikely that any point used for alignment would be repetitive and thus discarded if Babayoff’s teachings were followed. EX2011, ¶123; POR, 54. Petitioner’s attempt to dismiss Dr. Foroosh’s testimony as irrelevant because “prior art that sometimes meets the

claim elements is sufficient to show obviousness” (Reply, 19 (alterations and emphasis omitted)) misses the point—Dr. Foroosh explained how the applied art does not support Petitioner’s claims that the overlapping portion of the second scan data would be discarded under any circumstance. *See* EX2011, ¶¶120-23.

IV. CONCLUSION

Petitioner has failed to satisfy its burden in showing the unpatentability of the challenged claims.

Respectfully submitted,

Date: June 26, 2026

/ Michael T. Rosato /
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CERTIFICATE OF COMPLIANCE

Pursuant to §42.24(d), the undersigned certifies that this paper contains no more than 5,600 words, not including the portions of the paper exempted by §42.24(b). According to the word-processing system used to prepare this paper, the paper contains 5,504 words.

Respectfully submitted,

Date: June 26, 2026

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CERTIFICATE OF SERVICE

I certify that the foregoing Patent Owner's Sur-Reply was served on this
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