

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HEAD SPORT GMBH,
Petitioner

v.

VERMONT SAFETY DEVELOPMENTS LLC,
Patent Owner

Case No. IPR2024-01099
Patent No. 7,523,953
Filed: June 28, 2024

**PATENT OWNER'S PRELIMINARY RESPONSE TO PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 7,523,953**

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2001	Joint Claim Construction Statement (ECF No. 43), filed July 17, 2024, in <i>Vermont Safety Developments LLC v. Head Sport GmbH</i> , No. 2:23-cv-00089 (D. Vt.)
2002	Transcript of August 2, 2024, Hearing on Motion to Stay Case in <i>Vermont Safety Developments LLC v. Head Sport GmbH</i> , No. 2:23-cv-00089 (D. Vt.)
2003	Declaration of Maury Hull, Ph.D., in Support of Head Sport GmbH's Proposed Construction of Disputed Claims Terms of U.S. Patent No. 7,523,953, served June 14, 2024, in <i>Vermont Safety Developments LLC v. Head Sport GmbH</i> , No. 2:23-cv-00089 (D. Vt.)
2004	Order Granting Motion to Stay (ECF No. 51) in <i>Vermont Safety Developments LLC v. Head Sport GmbH</i> , No. 2:23-cv-00089 (D. Vt. Aug. 19, 2024)
2005	Second Amended Stipulated Discovery Schedule/Order (ECF No. 36) in <i>Vermont Safety Developments LLC v. Head Sport GmbH</i> , No. 2:23-cv-00089 (D. Vt. July 1, 2024)
2006	Head Sport GmbH's Initial Non-Infringement and Invalidity Contentions, served February 2, 2024, in <i>Vermont Safety Developments LLC v. Head Sport GmbH</i> , No. 2:23-cv-00089 (D. Vt.)

I. INTRODUCTION

Patent Owner Vermont Safety Developments LLC (“Patent Owner” or “VSD”) respectfully submits this Preliminary Response in accordance with 35 U.S.C. § 313 and 37 C.F.R. § 42.107, responding to the Petition for *inter partes* review (the “Petition”) filed by Head Sport GmbH (“Petitioner” or “Head”) against claims 30, 31, 34-38, 53-56, and 58-60 (the “challenged claims”) of U.S. Patent No. 7,523,953 (Ex. 1001, “the ’953 Patent”).

As explained in detail below, the Petition should be dismissed for failing to meet the threshold requirements for institution at least because, while giving lip service to applying VSD’s preliminary litigation constructions (Ex. 1010, “VSD’s Preliminary Constructions”), the Petition never actually adopts or applies any specific claim construction, fails to address Section 112(f), and, while purporting to present grounds for unpatentability under 35 U.S.C. § 103, the Petition does not present a coherent obviousness analysis that addresses each of the elements required to show unpatentability under Section 103. Every ground suffers from these failures to meet baseline requirements. The Board should also deny institution pursuant to 35 U.S.C. § 314(a) because the Petition does not present a “compelling” meritorious challenge for any proposed ground and a majority of the *Fintiv* factors weigh in favor of discretionary denial.

The Petition presents six proposed grounds of unpatentability, all under 35 U.S.C. § 103, based on three primary references: Grounds 1 and 2 rely on *Freudiger 1* (Ex. 1003) as the primary reference; Grounds 3 and 4 rely on *Dodge* (Ex. 1005) as the primary reference; and Grounds 5 and 6 rely on *Sittmann* (Ex. 1006) as the primary reference. None of these grounds are presented in a clear and concise manner; instead, the Petition continually muddies the waters by avoiding straightforward mapping of the claim language of the challenged claims to the teachings of the cited references. Further, the Petition fails to present a proper obviousness analysis with respect to any of the challenged independent claims by not identifying the differences between the scope and content of the prior art and the challenged claims. In an apparent attempt to create wiggle room for a later change in position, the Petition repeatedly states that references “disclose[], or at least render[] obvious” the claim limitations, then never clearly articulates either scenario. Head has used obfuscation rather than clarity because, when considered in a clear and structured manner, the references do not provide a basis for reasonable grounds for finding the challenged claims unpatentable.

In the Petition, the only thing that is clear is that Head has not met its burden of demonstrating a reasonable likelihood of prevailing with respect to any of the

challenged claims. VSD respectfully submits that the Board should decline to institute *inter partes* review.

II. THE '953 PATENT

The innovation disclosed and claimed in the '953 Patent is a ski binding system with two releases. One release is a conventional release configured in accordance with existing safety standards. Ex. 1001 ('953 Patent) at 4:56-63, 8:11-13, 9:13-25. The other release is an attenuated ACL-protecting release that (1) recognizes when certain load conditions likely to cause ACL knee injuries occur and (2) releases the boot only under those specific conditions, but not when other loads are applied, even if the other loads may have a greater absolute magnitude. *Id.* at 4:12-5:6. Solving this problem presented a significant challenge because the loading that can cause ACL injuries is lower in magnitude than other loads experienced at the ski binding. *Id.* Thus, an important aspect of the innovation disclosed in the '953 Patent is the recognition that the lower loads leading to ACL injuries are first preceded by another type of loading, which can be detected and used as a trigger to permit the ACL-protecting release at a lower force to occur only when that first triggering load is detected. *Id.* In the terminology of the '953 Patent specification, the conventional release is referred to as the “primary release” (*see, e.g., id.* at 8:11-13) and the attenuated ACL-protecting release is referred to as the “secondary

release” (*see, e.g., id.* at 10:8-10). When referred to in the ‘953 Patent claims, the claim term “first release” refers to the attenuated ACL-protecting release and the claim term “second release” refers to the conventional release. While at first blush this may seem inconsistent, there is in fact no inconsistency and the claims are unambiguous in this regard because they make clear that the first release is an attenuated release relative to the second release. *Id.* at 21:49-50, 24:24-26, 25:11-13.

Another important term used in the specification and claims is “release condition.” *See, e.g., id.* at 13:16-26, 21:5-8, 24:5-8. A “release condition” occurs when a load applied to the ski in certain directions has a magnitude that exceeds a binding setting selected to lessen the likelihood of ACL injury, allowing a release of the ski boot from the ski binding. *See, e.g., id.* at Abstract, 4:13-5:6. Whether the release condition occurs is determined by detecting loadings internal to the ski system (*i.e.*, the ski boot attached to the ski via the binding). *See, e.g., id.* at 4:13-5:6, 9:5-8. The binding detects the loading using spring biased mechanisms or electronic sensors in different described embodiments. *See, e.g., id.* at 11:12-12:22, 16:61-17:1. When a skier falls, the contact of the ski edge with the snow creates an external load on the ski. This external load is transferred to the skier’s leg through the ski system. The external load created by the fall also creates internal loads within the ski system,

specifically within components of the binding system of the ski system. Assessment of these internal loads by the binding system is used to determine whether the release condition is present so as to cause the attenuated ACL-protecting release to release the boot. *See, e.g., id.* at 4:13-5:6, 9:32-12:26.

The disclosed and claimed ski binding systems employ a “release logic” that assesses the internal loading within the ski/binding system by sensing a first loading relative to a first axis and a second loading relative to a second axis. *See, e.g., id.* at 9:4-10:46. The first and second axes correspond to pivot points within the binding system at which loads on the binding can be assessed. *See, e.g., id.* at 9:65-10:3. Because these axes are substantially perpendicular to the plane of the ski, and parallel to and spaced a known distance from the skier’s leg axis (also referred to as the “tibial axis” or the “third axis”), the location, sense (direction), and magnitude of the load at the skier’s leg can be known based on the sensed loads at the first and second axes. *See, e.g., id.* at 9:4-10:46; *see also id.* at 5:31-54 (explaining application of “the basic equation, Force times Distance equals Torque”). For example, if a torque sensed at the first axis is greater than the torque sensed at the second axis, that means the moment arm of the first torque is longer than the moment arm of the second torque, which tells the system that the load is being applied to the ski at a location beyond the second axis opposite the first axis.

FIG. 9A

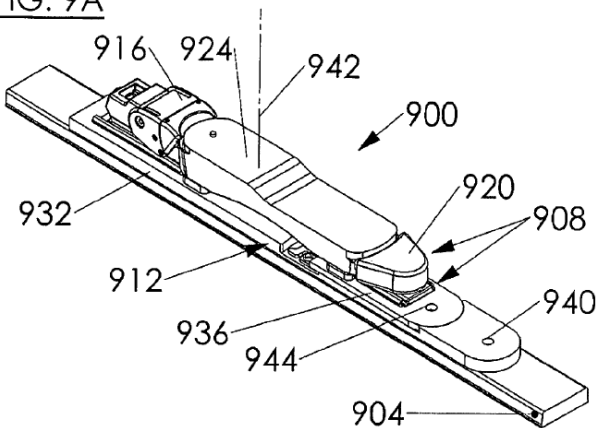
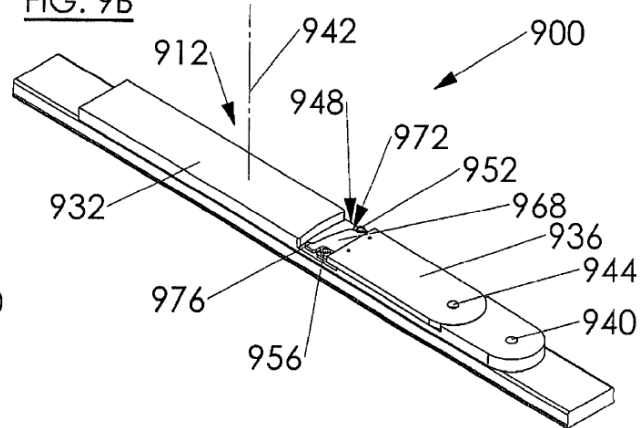


FIG. 9B



In one example shown in FIG. 9A and FIG. 9B of the '953 Patent, a ski system 900 includes a left ski 904, a binding system 908, and a release-logic mechanism 912. *Id.* at 9:9-13. The primary mechanisms providing the release logic are embodied in the trigger platform 932 and the toe release 936. *Id.* at 9:34-36. A conventional heel piece 916 is secured to the trigger platform 932, and a conventional toe piece 920 is secured to the toe release 936. *Id.* at 9:13-25, 9:37-39. There are three principal axes involved in the release logic. In this example, a first axis is the axis at the pivot point 940 of the trigger platform 932. *Id.* at 9:56-64. The second axis is the axis at the pivot point 944 of the toe release 936. *Id.* at 9:65-10:3. And the third axis is the tibial axis 942 of the skier. *Id.* at 9:56-59.

It is the loading at these axes that dictates when and how the binding system releases. *Id.* at 9:47-10:46. The release logic functions in its primary release mode in accordance with existing safety standards until a specified trip torque is reached, when it enables an attenuated release to protect the ACL. *Id.*

III. PERSON OF ORDINARY SKILL IN THE ART (“POSITA”)

Because, for the reasons detailed below, Head’s Petition fails regardless of the level of skill of a POSITA, the Board need not resolve the precise level of skill in order to deny institution. Thus, for purposes of this Preliminary Response only, VSD does not now dispute the definition of the POSITA as set forth by Dr. Hull (Ex. 1002 ¶ 31).¹

IV. CLAIM CONSTRUCTION

Claim construction is governed by the standards articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). By statute, a “petition must set forth . . . a statement of the precise relief requested for each claim challenged,” including “[h]ow [each] challenged claim is to be construed” and “[h]ow [each] construed claim is unpatentable” under those constructions. 37 C.F.R. § 42.104(b)(3)-(4). Here, Head has suggested: “Because Patent Owner contends in a parallel proceeding that a broad construction should apply for its infringement allegations, the Board should analyze patentability under the same interpretation.” Pet. at 6 (citing Ex. 1010 (VSD’s Preliminary Constructions)). However, Head fails

¹ VSD reserves its right to set forth a different skill level in the future if necessary, because, among other issues, Dr. Hull apparently fails to appreciate the importance of the ski binding safety standards discussed in the ‘953 Patent specification and certain other related standards, which are an important part of the knowledge of a POSITA in this art.

to apply these constructions, and even repeatedly expressly disagrees with them, as discussed below. Because the Petition is deficient on its face for the reasons set forth below, the Board need not make any specific claim construction determinations at this stage and VSD takes no position on construction of specific terms at this time.

V. THE PETITION FAILS TO MEET THE REQUIREMENTS FOR INSTITUTING *INTER PARTES* REVIEW

An IPR may be instituted only if the information presented in a petition filed under 35 U.S.C. § 311 “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). To meet this burden, the petition must at a minimum identify “the challenged claims and the grounds for challenge **with particularity**.” *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 357 (2018) (citing 35 U.S.C. § 312(a)(3));² *see also* 37 C.F.R. § 42.104(b) (specifying necessary elements of a petition); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3)) (“[T]he petitioner has the burden from the onset to show **with particularity** why the patent it challenges is unpatentable.”).

This requirement of “particularity” is “of the utmost importance”:

It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify “with particularity” the “evidence that supports the grounds for the challenge

² **Emphasis added** throughout unless otherwise noted.

to each claim.” 35 U.S.C. § 312(a)(3). . . . Unlike district court litigation—where parties have greater freedom to revise and develop their arguments over time and in response to newly discovered material—the expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute. While the Board’s requirements are strict ones, they are requirements of which petitioners are aware when they seek to institute an IPR.

Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd., 821 F.3d 1359, 1369 (Fed. Cir. 2016). In fact, “the Board may consider whether a lack of particular[ity] as to one or more of the asserted grounds justifies denial of an entire petition.” *Adaptics Ltd. v. Perfect Co.*, IPR2018-01596, Paper 20 at 17 (PTAB Mar. 6, 2019) (informative).

Because of the importance of particularity, the IPR rules set out in 37 C.F.R. § 42.104(b) specify the required content of a petition in detail. Not only must the challenged claims and the specific statutory grounds for unpatentability be identified, Rule 42.104(b)(3) requires the Petition to identify how each “claim is to be construed” and, for means-plus-function limitations, “identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.” Rule 42.104(b)(4) then requires the Petition to identify how each “construed claim is unpatentable under the **statutory grounds** identified.” 37 C.F.R. § 42.104(b)(4) (emphasis added). As explained in detail below, the Petition does not meet these standards and should be dismissed.

A. The Petition Identifies Neither a Specific Claim Construction for Challenged Claims nor Structure or Function for Limitations Head Asserts to be Means-Plus-Function Limitations

A grantable petition must identify “[h]ow the challenged claim is to be construed” and, for claims containing means-plus-function limitations, “the construction of the claim must identify the specific portions of the specification that describe the structure . . . corresponding to each claimed function.” 37 C.F.R. § 42.104(b)(3). Here, the Petition has utterly failed to meet these clear requirements.

The Petition begins by appearing to first suggest that it need not set forth any claim construction at all,³ but then turns to apparently applying preliminary claim constructions initially proposed in April 2024 by VSD in the parallel district court litigation: “Because Patent Owner contends in a parallel proceeding that a broad construction should apply for its infringement allegations, the Board should analyze patentability under the same interpretation.” Pet. at 6 (citing Ex. 1010 (VSD’s Preliminary Constructions)).⁴ While the Petition itself never actually provides any of the constructions supposedly applied, Dr. Hull in his declaration does repeat the

³ *I.e.*, “[n]o terms need construction to resolve the controversy in this forum.” Pet. at 6.

⁴ Head miscaptioned its Ex. 1010. It is not the Patent Owner’s “Proposed Claim Constructions” as stated by Head. Pet. at vi. It was, as clearly stated in the document title, “Preliminary Claim Constructions.” Ex. 1010 at 1. VSD’s proposed constructions from the district court litigation are instead presented in the Joint Claim Construction Statement filed July 17, 2024. *See* Ex. 2001 (JCCS).

language of VSD's Preliminary Constructions, but then in each and every instance he expressly disavows the construction, limiting his opinion on each claim limitation by stating, "without agreeing with Patent Owner's proposed construction." *E.g.*, Ex. 1002 (Hull Decl.) ¶ 70. Moreover, neither the Petition nor Dr. Hull ever say anything at all about how claim limitations not included in VSD's Preliminary Constructions are to be construed. Adding to the mystery of the Petition's shifting positions on claim construction, in the parallel district court litigation Head has characterized its IPR Petition as not providing any construction at all for the challenged claims: "And as we filed our IPR, **we did not define the claims in a specific way.**" Ex. 2002 (Hearing Tr.) at 8:11-13.

The failure to identify structure corresponding to claimed function for terms that Head knows are disputed with respect to application of 35 U.S.C. § 112(f)⁵ is another clear and obvious defect in the Petition. It is now well-established that when a petitioner knows there is a dispute in district court about whether a limitation in a challenged claim should be construed under Section 112(f), the petitioner is required to address this in the petition, and failing to do so renders a petition "deficient on its face." *10x Genomics, Inc. v. President and Fellows of Harvard College*, IPR2023-

⁵ Although the '953 Patent is a "pre-AIA" patent, reference to Section 112(f) is appropriate. See MPEP § 2181.

01299, Paper 15 at 7-13 (PTAB Mar. 7, 2024) [hereinafter *10x Genomics I*]; *see also* Patent Trial and Appeal Board, Consolidated Trial Practice Guide at 45 (Nov. 2019) [hereinafter Trial Practice Guide]. In the present case, and as explained in detail below, Head clearly knows that there is a dispute as to whether the term “release logic” in each challenged independent claim should be construed as a means-plus-function term.⁶

Thus, as explained in detail below, Head has failed to satisfy Rule 42.104(b)(3) at least because (1) Head does not identify with particularity how all limitations of the challenged claims are to be construed, and, through the Hull Declaration, expressly disagrees with the only constructions it purports to apply; and (2) Head completely fails to address 35 U.S.C. § 112(f) despite knowing that the parties dispute in the district court whether the “release logic” term in all challenged independent claims is a means-plus-function term. Thus, for the reasons described in detail below, Head’s failure to properly set forth claim constructions warrants denial based on Rule 42.104(b)(3).

⁶ Head has asserted that “release logic” is a means-plus-function term in each of (1) its preliminary proposed constructions (Ex. 1014 at 3-5, 11-13), (2) the parties’ Joint Claim Construction Statement (Ex. 2001 at 3), and (3) Dr. Hull’s claim construction declaration (Ex. 2003 ¶¶ 74-89). *See also infra* Section V.A.2.

1. Due To Caveats, Disavowals, and Shifting Positions, the Petition Does Not Identify a Specific Construction for the Challenged Claims

As mentioned, Head appears to contend that VSD's Preliminary Constructions should apply, and characterizes those constructions not as representing the plain and ordinary meaning, but as "a broad construction." Pet. at 6; see *Samsung Elecs. Am., Inc. v. Cobblestone Wireless, LLC*, IPR2024-00319, Paper 16 at 14 (PTAB June 24, 2024) [hereinafter *Samsung I*] ("Petitioner also does not assert that Patent Owner's purported construction represents the plain and ordinary meaning of the claim language, and Petitioner indeed suggests otherwise by characterizing this construction as a 'broad interpretation' . . ."). But in spite of asserting that those so-called "broad constructions" should be applied, no attempt is made in the Petition to support those constructions as required: "Where a petitioner specifically relies on a particular construction of a claim term in order to demonstrate unpatentability, particularly a construction different from the ordinary meaning, that claim construction is part of the unpatentability analysis, and **the petitioner must provide a sufficient basis to support that construction.**" *Id.* at 20.

Head injects further uncertainty as to exactly what constructions should be used to construe the challenged claims by disavowing every single one of VSD's Preliminary Constructions it purports to apply. Head and its expert, Dr. Hull,

repeatedly, expressly disagree with those constructions. Immediately after instructing the Board to apply the VSD Preliminary Constructions, Head caveats its instruction with “Petitioner may dispute [those] constructions in the district court case.” Pet. at 6. More tellingly, however, almost every time Dr. Hull purports to apply one of those constructions, he first disavows it by qualifying his opinion as **“without agreeing with Patent Owner’s proposed construction”**. Ex. 1002 (Hull Decl.) ¶¶ 70, 83, 86, 94-99, 104-05, 125-27, 140-41, 143-45, 162-63, 186-87, 189-90, 218, 226-27, 235-40, 247-48, 262-64, 272-73, 275-77, 297-98, 312-13, 315-16, 333, 336, 343-48, 356-58, 364-65, 382-83.⁷

Head cannot prevail when it fails to support the proffered constructions, and further disavows or disagrees with every claim construction that it purports to apply.

The Board has made this clear:

Petitioner has failed to set forth a sufficient basis to support the claim construction it relies on and, consequently has failed to establish a reasonable likelihood that its unpatentability arguments, which are based on that construction, have merit. . . . [O]ur determination does not rely on discretionary denial or exclusively on Rule 42.104(b)(3),

⁷ While never mentioned in the Petition itself, with some claim limitations Dr. Hull goes even further with his disavowal of the supposedly applied constructions. For example, in analyzing *Sittmann* in Grounds 5 and 6: “I disagree with Patent Owner’s contention that a first axis and a second axis are ‘substantially perpendicular to the plane of the ski’ in claim 58. . . . [I]t is my opinion that claim 58 does not require the first and second axes to be substantially parallel nor does it require the axes to each be perpendicular to the plane of the ski.” Ex. 1002 (Hull Decl.) ¶ 342. *See also infra* Section V.E.1.d.

but rather it is based on Petitioner's failure to demonstrate a reasonable likelihood that [the limitation] is obvious based on [the prior art]. Where a petitioner specifically relies on a particular construction of a claim term in order to demonstrate unpatentability, particularly a construction different from the ordinary meaning, that claim construction is part of the unpatentability analysis, and the petitioner must provide a sufficient basis to support that construction. Here, Petitioner has not done so because: (1) Petitioner does not rely on the plain and ordinary meaning of the term, and its own expert testifies that its construction is contrary to the plain and ordinary meaning; (2) Petitioner offers no intrinsic or extrinsic evidence that the construction it relies on is correct; and (3) Petitioner and its expert assert that the proffered construction is inconsistent with the [specification]. . . . Additionally, we find insufficient Petitioner's conclusory statement that [the prior art] discloses [the] limitation "under either Patent Owner's apparent interpretation or the plain and ordinary meaning of the term." Neither Petitioner nor [its expert] explain what they believe the plain and ordinary meaning of [the term] is, what the support would be for any such meaning, or how [the prior art] teaches or suggests [the] limitation under that plain and ordinary meaning.

Samsung I, IPR2024-00319, Paper 16, at 20-21 (citations omitted); *see also Hologic, Inc. v. Enzo Life Scis., Inc.*, IPR2018-00019, Paper 21 at 5-7 (PTAB Nov. 28, 2018) ("Petitioner does not satisfy Rule 42.104(b)(3) when, in a proceeding applying the *Phillips* claim-construction standard, it 'expressly disagree[s] with its proffered constructions.'" (quoting *Western Digital Corp. v. SPEX Techs., Inc.*, IPR2018-00084, Paper 14 at 12 (PTAB Apr. 25, 2018))); *CareFusion Corp. v. Baxter Int'l, Inc.*, IPR2016-01456, Paper 9 at 6-7 (PTAB Feb. 6, 2017) ("Petitioner has failed to provide a sufficient statement of how the challenged claims are to be construed" because "it relies on constructions advanced by Patent Owner in the related

litigation” but “also states that it *does not agree that those constructions are in fact correct.*” (emphasis in original)); *Orthopediatrics Corp. v. K2M, Inc.*, IPR2018-01548, Paper 9 at 10-11 (PTAB Mar. 1, 2019) (denying institution when “Petitioner’s contentions [were] limited to how the claim limitations at issue *should not be construed*” (emphasis in original)); *Samsung Elecs. Am., Inc. v. Uniloc 2017 LLC*, IPR2020-00046, Paper 6 at 10 (PTAB Apr. 1, 2020) [hereinafter *Samsung II*] (“We exercise our discretion and decline Petitioner’s invitation to adopt allegedly incorrect claim constructions and institute an *inter partes* review on the basis of those constructions.”).

Since the adoption of the *Phillips* standard for IPR claim construction, the Board has permitted reliance on alternative claim constructions **so long as** there is at least one set of constructions that the petitioner affirmatively adopts. *See, e.g., 10x Genomics, Inc. v. Bio-Rad Labs., Inc.*, IPR2020-00086, Paper 8 at 21-22 (PTAB Apr. 27, 2020) [hereinafter *10x Genomics II*]; *Samsung I*, IPR2024-00319, Paper 16, at 21-22 (collecting cases).⁸ But Head has not affirmatively adopted any

⁸ The only case cited in the Petition as supposedly supporting Head’s express disavowal of its proffered claim constructions was decided under the former broadest reasonable interpretation (“BRI”) standard for IPRs. Pet. at 6 (citing *Google LLC v. AGIS Software Devel., LLC*, IPR2018-01083, Paper 10 at 10-11 (Jan. 10, 2019)). The Board in *Google* even relied on the BRI standard in reaching its holding. IPR2018-01083, Paper 10 at 11-12.

construction. Not only do Head and Dr. Hull expressly disavow virtually every construction they say they apply, there are several instances where Head appears to apply alternative constructions for which it provides no basis at all and characterizes as constructions that VSD “may improperly argue.” Pet. at 15 (Ground 1, limitation [30(b)]), 48 (Ground 3, limitation [30(a)]), 50-51 (Ground 3, limitation [30(b)]), 63 (Ground 3, limitation [53(e)]), 67 (Ground 3, limitation [58(c)]), 83 (Ground 5, limitation [58(c)]); Ex. 1002 (Hull Decl.) ¶¶ 88, 217, 224, 261, 281, 341. By referring to those alternative constructions as being improper, it is clear that Head does not agree with these alternatives either. Unlike the cases where the alternatives include constructions that the petitioner proposes, here the alternatives are merely a second set of constructions that Head believes are wrong. Institution should be denied because the petition—by Head’s own admission—rests on an infirm foundation.

Adding to the uncertainty surrounding Head’s claim construction positions, Head’s counsel has said that Head did not identify any claim constructions in the Petition. During the hearing on Head’s Motion to Stay in the district court, Head’s lead counsel in this IPR stated that in its petition for IPR, Head “**did not define the claims in a specific way.**” Ex. 2002 (Hearing Tr.) at 8:11-13. He then proceeded to tell the district court that Head did not identify how the challenged claims should

be construed because “that’s [the Board’s] job. Their job is to construe their claims.”

Id. at 8:17-18. After being pressed on the citation of VSD’s Preliminary Constructions in the Petition, Head’s lead counsel further explained its IPR claim construction position:

In our IPR petition we pointed to -- we pointed the PTAB to [VSD’s] claim construction, but we told the PTAB that they don’t -- we don’t believe they need to construe the claims; that the claims can be read on their face. The PTAB can understand them. . . . So we did not -- **we have not used their claims construction** as they claimed

Id. at 44:19-45:4. Tellingly, these statements by Head in the district court do accurately reflect the incoherent claim construction positions taken in the Petition.

As a result of Head’s ever-shifting positions on claim construction, VSD and the Board are left in the dark as to exactly how Head contends the challenged claims are to be construed to support its unpatentability argument.⁹ Undoubtedly, if given a chance, Head would argue that its total of eleven (11) lines on claim interpretation on page 6 of the Petition satisfy its obligation to identify how the challenged claims are construed. However, lip-service to preliminary litigation constructions, which are then disavowed in their entirety by the expert who is supposedly applying the

⁹ When presenting the grounds for unpatentability of the challenged claims, Head rarely states expressly how the claims are to be construed and appears to simply apply whatever is convenient under the circumstances—sometimes ordinary meaning, sometimes VSD’s Preliminary Constructions, sometimes something else entirely that the Patent Owner might “improperly argue.”

constructions, does not meet the clear requirement to identify with particularity how the challenged claims are to be construed. 37 C.F.R. § 42.104(b)(3); *Intelligent Bio-Systems*, 821 F.3d at 1369.

2. Head Failed to Address Whether the “Release Logic” Term Should be Construed as a Means-Plus-Function Term

The claim construction deficiency in the Petition is exacerbated by Head’s contradictory approaches to the construction of the “release logic” term and whether that term should be construed as a means-plus-function term. “Release logic” is a limitation in all three independent claims challenged in the Petition. Ex. 1001 (’953 Patent), cls. 30, 53, 58. In the parties’ preliminary claim constructions served on April 23, 2024, Head asserted that “release logic” is a “[m]eans plus function term subject to § 112, ¶ 6” (Ex. 1014 at 3-4) and VSD asserted that it is not a means-plus-function term and proposed a construction (Ex. 1010 at 5). Further, on June 14, 2024, Head served a declaration from Dr. Hull in support of its district court claim construction positions in which Dr. Hull dedicated seven (7) pages to explaining his opinion as to why “release logic” is a means-plus-function term. Ex. 2003 (Hull CC Decl.) ¶¶ 74-89. Head therefore knew well when it filed its Petition on June 28,

2024, that whether “release logic” is a means-plus-function term is a significant disputed issue in the district court.¹⁰

Rule 42.104(b)(3) requires, when Section 112(f) is implicated, the petition to “identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.” The Consolidated Trial Practice Guide emphasizes the significance of Rule 42.104(b)(3) in cases where there **may** be a dispute about construing a term under Section 112(f):

Where claim language **may** be construed according to 35 U.S.C. § 112(f), a petitioner **must** provide a construction that includes both the claimed function and the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function. 37 C.F.R. § 42.104(b)(3). A party may choose to elaborate why § 112(f) should or should not apply to the limitation at issue. . . . A petitioner who chooses not to address construction under § 112(f) risks failing to satisfy the requirement of 37 C.F.R. § 42.104(b)(3).

Trial Practice Guide at 45.

When a petitioner knows that there is a dispute in district court about whether a limitation in a challenged claim should be construed under Section 112(f), the petitioner is required to address Section 112(f) in the petition, and failing to do so renders a petition “deficient on its face.” *10x Genomics I*, IPR2023-01299, Paper

¹⁰ The parties’ Joint Claim Construction Statement filed on July 17, 2024, also confirms that, in the district court, Head is arguing that “release logic” is a means-plus-function term and VSD is arguing that it is not. Ex. 2001 at 3.

15 at 7-13; *see also Orthopediatrics Corp. v. K2M, Inc.*, IPR2018-01546, Paper 10 at 12 (PTAB Feb. 14, 2019) (“By failing to reconcile its proffered claim construction here with its very different [means-plus-function] construction proffered in District Court . . . Petitioner fails to satisfy [its] burden.”).

The denial of the petition in *10x Genomics, Inc. v. President and Fellows of Harvard College* is particularly instructive on this point. There, in the district court, the petitioner argued that a claim phrase was governed by Section 112(f) and a co-plaintiff argued that the claim phrase was not governed by Section 112(f). Paper 15 at 9. Then, in its petition, the petitioner asserted that “[s]olely for the purposes of this IPR,” the co-plaintiff’s proposed constructions should apply. *Id.* at 8. In other words, the petitioner “relie[d] on [the co-plaintiff’s] interpretation that the phrase is *not* governed by § 112(f), but in the district court proceeding, [the petitioner took] the opposite position, arguing that the claim phrase *is* governed by § 112(f).” *Id.* at 9 (emphasis in original). The petitioner also “chose not to argue § 112(f) does apply in the alternative, despite knowing that it is a claim term in dispute in the district court.” *Id.* at 11. The Board then found that the petitioner should suffer “the consequences of its strategic choice to not address § 112(f),” as the petitioner “should have provided reasons why the limitation is not governed by § 112(f) or provided an express construction of the claim phrase” in order to satisfy Rule

42.104(b)(3). *Id.* at 11-13. The Board denied institution, explaining that the petition was “deficient on its face under 37 C.F.R. § 42.104(b)(3)” because the petitioner stated that no construction was necessary “while knowing the construction is actually disputed under § 112(f).” *Id.* at 13.

The same facts are presented by Head’s Petition. Head knows that the construction of “release logic” is disputed under Section 112(f) in the district court, having asserted that Section 112(f) applies (*see supra* n.6), while VSD asserted that Section 112(f) does not apply (Ex. 1010 at 5; Ex. 2001 at 3). But in its Petition, Head took the opposite position by arguing that VSD’s Preliminary Constructions should apply (Pet. at 6), and never even mentioned that it had argued extensively for treatment under Section 112(f) in the district court. Head has provided neither reasons why “release logic” should not be governed by Section 112(f) nor an alternative analysis if “release logic” is governed by Section 112(f). Instead, Head mysteriously and contradictorily asserts that no terms need construction, but that VSD’s Preliminary Constructions should be applied without mentioning the Section 112(f) dispute. *Id.* This failure to address Section 112(f) in the Petition alone renders the Petition “deficient on its face under 37 C.F.R. § 42.104(b)(3).” *10x Genomics I*, IPR2023-01299, Paper 15 at 13.

B. The Petition Fails to Identify Differences Between the Cited References and the Challenged Claims as Required by the Asserted Obviousness Grounds

A petition must identify how the challenged claims are unpatentable under the statutory grounds on which the petitioner challenges them, must specify where each element of each claim is found in the relied-upon prior art, and must do so with particularity. 37 C.F.R. § 42.104(b)(4); *Intelligent Bio-Systems*, 821 F.3d at 1369.

Head's Petition fails to meet this standard and thus fails to demonstrate a reasonable likelihood that it will prevail with respect to any of the challenged claims. As discussed in detail below on a limitation-by-limitation basis, in addition to failing to identify how the claims are to be construed, for no ground of alleged unpatentability has the Petition properly addressed the requirement that the grounds on which each claim is challenged be identified with particularity.

All six grounds for unpatentability are presented under 35 U.S.C. § 103 for obviousness. As such, the Petition must identify the differences between the challenged claims and the alleged prior art. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 794 (Fed. Cir. 2021) (“[T]he scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.” (quoting *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17 (1966))); *see also Nat'l Rsch.*

& Dev. Corp. v. Varian Assocs., Inc., 883 F. Supp. 976, 984 (D.N.J. 1995) (“Although the claim must be considered as a whole, ‘the differences between the claim and the prior art need to be identified to place the obviousness analysis into proper perspective.’” (quoting *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 717 (Fed. Cir.1991))).

Yet in spite of this well-understood requirement of any obviousness analysis, Head never explicitly identifies which limitations of the challenged claims are not disclosed in the purportedly invalidating references.¹¹ Instead, the Petition (and Dr. Hull) repeatedly states (some 31 times) that a limitation is “disclos[ed], or at least render[ed] obvious” by a reference. In doing so, because this is done for essentially every limitation in a claim, Head appears to be asserting both anticipation and obviousness within the same analysis. But “anticipation and obviousness are different grounds, requiring different analyses, and different evidence.” *SNF S.A. v. Chevron U.S.A., Inc.*, IPR2022-01534, Paper 46 at 28 (PTAB Apr. 18, 2024).

Notwithstanding the apparent nod to anticipation in its argument, the Petition very clearly states only obviousness grounds of unpatentability under 35 U.S.C. § 103. Pet. at 7. As such, the Petition must state whether a limitation is disclosed or

¹¹ The Petition does actually identify differences between the claim and references for just a few dependent claims, which only serves to further emphasize the inadequacy of the independent claim analyses. See, e.g., Pet. at 35-39.

is not disclosed in order to meet its burden to identify with particularity the grounds on which the challenge to each claim is based. *Adaptics*, IPR2018-01596, Paper 20 at 18-20 (rejecting the petitioner’s attempt to argue that “[i]f [references] are not anticipatory, [then] the challenged claims are obvious”). Just as in *Adaptics*, the Petition here fails to specify what the Petitioner regards as the differences between the cited references and the challenged claims. *Id.* at 18-20 (citing *Graham*, 383 U.S. at 17 (requiring that the differences between the prior art and the claims at issue be ascertained as part of an obviousness analysis)).

The Petition asserts that the challenged claims are rendered obvious, in some cases by a single reference, and in other cases by two or three references, but never says which limitations are missing nor which must be supplied through a motivation to combine (or modify in the case of the single-reference grounds). For at least these reasons, the Petition does not actually present analyses or evidence of obviousness. This lack of particularity as to one or more of the asserted grounds justifies denial of the entire Petition, just as in *Adaptics*. *See id.* at 17.

C. Grounds 1-2: The *Freudiger 1* Grounds Should Be Discarded Because Head Has Failed to Properly Analyze Independent Claims 30, 53, and 58 Under 35 U.S.C. § 103 and State How the Claims Should Be Construed

In Ground 1, Head asserts that the challenged claims are unpatentable as obvious under 35 U.S.C. § 103 over *Freudiger 1*. *Freudiger 1* discloses a ski binding

system in which the front and rear jaws are connected to a control element that can modify the release force based on the type of load experienced by the ski. Ex. 1003 (*Freudiger 1*) at 2:6-12.¹²

For each challenged independent claim, instead of presenting the Board with a proper obviousness analysis in which the differences between the claimed invention and *Freudiger 1* are determined, the missing limitations are identified, and the motivation for modifying *Freudiger 1* to include the missing limitations is explained, Head hedges on each limitation, creating some sort of unworkable hybrid Section 102/103 ground in which every limitation is at once both “disclosed” and “rendered obvious.” This approach is consistent with Head’s failure to identify how the claims are to be construed, in that Head obfuscates at every turn rather than presenting a clear case for unpatentability. As such, and as explained in more detail below, Head has not stated with particularity how each claim is unpatentable and so cannot demonstrate a reasonable likelihood that it would prevail on Grounds 1-2.

Of the claims challenged in the Petition, claims 30, 53, and 58 are the only independent claims. In Ground 1, Head contends that each of these claims is obvious in light of *Freudiger 1*. For none of these claims, however, does Head provide an

¹² Unless noted otherwise, citations to *Freudiger 1*, *Freudiger 2*, and *Sittmann* refer to the certified translation provided in Ex. 1003, Ex. 1004, and Ex. 1006, respectively.

obviousness analysis that addresses the requirements of the statute. And, as explained above, Head also fails to use the claim constructions that it states the Board should use to analyze patentability, that is, VSD's Preliminary Constructions. Finally, for each of these claims, Head neglects to acknowledge or address the fact that the parties dispute whether the "release logic" term should be interpreted as a means-plus-function term.

1. Claim 30

a. The Limitation(s) of Claim 30 That Are Missing From *Freudiger 1* Are Not Specified

The Petition asserts that *Freudiger 1* "discloses, or at least renders obvious," every limitation of claim 30. See Pet. at 10, 14, 16, 17, 19. Dr. Hull also states that each limitation is "disclose[d] or at least render[ed] obvious." Ex. 1002 (Hull Decl.) ¶¶ 64, 67, 81, 89, 100, 107. But neither the Petition nor Dr. Hull ever specify which limitations of claim 30 are actually present (*i.e.*, disclosed) and which limitations require the POSITA to make some sort of modification of or addition to *Freudiger 1* to meet the limitation.

By stating that each limitation could be either disclosed or rendered obvious (*i.e.*, not disclosed), the Petition presents the following possible rationales for unpatentability: *Freudiger 1* discloses all of the limitations of claim 30, none of the

limitations of claim 30, or any of thirty other combinations¹³ of disclosed and undisclosed yet possibly obvious limitations of claim 30. Presumably the first of those possibilities can be ruled out since Head did not identify Section 102 as a relevant statutory ground (in spite of appearing to suggest that every limitation of claim 30 is possibly disclosed in *Freudiger 1* alone). As a result, the only thing clear about the Petition's argument is that it fails to state with particularity the basis for the unpatentability of the challenged claim.

Moreover, this leaves VSD and the Board in the dark about which limitations Head is contending are not disclosed by *Freudiger 1*, and it is not VSD or the Board's job to ferret out Head's theory. See *Microsoft Corp. v. FG SRC, LLC*, 860 F. App'x 708, 713 (Fed. Cir. 2021) ("Arguments in a petition must be made with particularity, not opacity."); *Playtika Ltd. v. NexRF Corp.*, IPR2021-00952, Paper 14 at 14 (PTAB Nov. 6, 2021) (denying institution when the petitioner "invited Patent Owner and the Board to choose their own adventure to arrive at the challenged claims"). For those limitations that Head contends are not disclosed by *Freudiger 1*, whichever one or ones they are, of which there must be at least one because Ground 1 is based on obviousness, Head has failed to properly present an obviousness analysis because it has not provided

¹³ Dr. Hull split claim 30 into five main elements, [30(a)]-[30(e)]. $5C1 + 5C2 + 5C3 + 5C4 = 30$ combinations.

a clear basis for modifying the ski binding of *Freudiger 1* with the teachings of *Freudiger 1* (nor the teachings of anything else).

Just one example of how Head refuses to state unequivocally whether *Freudiger 1* discloses a limitation or not is limitation [30(e)]. As with each limitation of claim 30, Head states that *Freudiger 1* “discloses, or at least renders obvious” this limitation. Pet. at 19. Head then includes a conclusory statement that “the release logic determines whether the release condition is occurring as a function of the force-couple” *Id.* at 20. Based on this, Head appears to contend that this limitation is disclosed by *Freudiger 1*. Yet Head then goes on to state, “*Freudiger-1* suggests that a force-couple is determined at a third axis” and that “a POSITA would have both understood and found it obvious that the reaction forces . . . create a force-couple around the z-axis.” *Id.* at 21. These statements might indicate that Head is acknowledging that *Freudiger 1* does not disclose this limitation and is attempting to put forth some sort of obviousness analysis. But anticipation and obviousness require different analyses, and should not be mashed into one incoherent hybrid analysis. Head, and Dr. Hull, should be able to state definitively whether limitation [30(e)] (as well as each of [30(a)]-[30(d)]) is disclosed or not. If not, Head needed to state what the differences are between the claim and *Freudiger 1* and provide a motivation for why a POSITA would

have modified *Freudiger 1* in such a way as to reach claim 30. Because Head never does this for claim 30 in Ground 1, Head has failed to meet its burden.

The deficiencies of Ground 1 of the Petition are further detailed below with respect to individual limitations of claim 30.

b. Limitation [30(a)]

Limitation [30(a)], as presented in a section heading of the Hull Declaration, reads: “a ski binding assembly configured to be attached to the ski and to releasably secure the ski boot to the ski during use, said ski binding assembly having a first release”. The Petition does not mention how this particular limitation is to be construed, but, as noted, Head provided a general instruction for the Board to analyze the claims under VSD’s Preliminary Constructions. VSD’s Preliminary Constructions do not actually include any construction for claim 30 since claim 30 is not part of the district court case. However, VSD did propose a specific construction for the term “first release”, which is also in claims 53 and 58.

The Petition, in spite of its instruction to the Board to the contrary, does not apply the corresponding VSD Preliminary Construction. Not only is that construction for “first release” not presented in the Petition, it is readily apparent that the Petition does not apply it because the VSD Preliminary Construction of “first release” includes

a reference to lessening “the likelihood of ACL injury.” Ex. 1010 at 3.¹⁴ Clearly this is not discussed in the Petition with respect to limitation [30(a)].

Dr. Hull at least does acknowledge the construction of “first release” that the Petition tells the Board to apply, but then Dr. Hull also does not actually apply the construction. At first, after repeating the construction, it seems like Dr. Hull might apply it, stating: “In my opinion, without agreeing with Patent Owner’s proposed construction, *Freudiger-1* discloses, or at least renders obvious, the claimed ‘first release.’” Ex. 1002 (Hull Decl.) ¶ 70. But then, in the following ten paragraphs, in which Dr. Hull purports to analyze how *Freudiger 1* meets this claim limitation, he never once attempts to explain how the disclosure of *Freudiger 1* (which does not mention the ACL) teaches or suggests anything at all about “lessen[ing] the likelihood of ACL injury” as required by the proffered construction. In fact, Dr. Hull’s opinion that this limitation is met (or is not met) is clearly based **only** on his opinion that *Freudiger 1* “has a first release” because there is a release at a “reduced threshold release force,” but not because that reduced threshold is in anyway related

¹⁴ In VSD’s Preliminary Constructions, which the Petition purports to apply, the construction of “first release” was “[a] mechanism within the ski binding assembly that allows separation of the ski boot from the ski automatically and without skier intervention in response to a predetermined external loading of the ski correlated to an estimated tibial axis load level **selected to lessen the likelihood of ACL injury.**” Ex 1010 at 3.

to lessening a likelihood of ACL injury as required by the construction Head has instructed the Board to apply. *See id.* ¶¶ 76, 78, 80.

The complete absence of any connection between the language of the claim construction purportedly applied and the disclosure of *Freudiger 1* is just one example of how the Petition fails to identify with particularity how construed claim 30 is unpatentable under the asserted statutory ground.

c. Limitation [30(b)]

Limitation [30(b)], according to the Hull Declaration, reads: “said ski binding assembly including release logic that causes the ski binding assembly to release the ski boot at said first release in response to a release condition”. Again, the Petition does not indicate how this particular limitation should be construed, and so one is left with the general instruction to apply VSD’s Preliminary Constructions. For this limitation, too, though, there is no such construction because claim 30 is not involved in the district court case. To add further confusion, Head speculates about a construction limited to “a force applied to the ski’s inside edge” that “Patent Owner may improperly argue” (Pet. at 15), but provides no citation to any such proposed construction or any

other support for it.¹⁵ This just exacerbates Head’s failure to state how the claim is to be construed.

Moreover, [30(b)] includes the term “release logic,” which Head is contending in the district court should be construed as a means-plus-function term under Section 112(f). Yet the Petition never mentions this, which by itself renders the Petition inadequate. *See supra* Section V.A.2. Limitation [30(b)] also includes the term “release condition”, which is discussed in more detail in *infra* Section V.C.1.e.

d. Limitation [30(c)]

Limitation [30(c)], according to the Hull Declaration, reads: “said ski binding assembly configured to: assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system; and assess, relative to a second axis spaced from said first axis and substantially parallel to said first axis, a second loading internal to the ski system caused by the external loading”.

The Petition does not provide a construction for this limitation. Dr. Hull refers to constructions that the “Patent Owner contends” (Ex. 1002 (Hull Decl.) ¶¶ 94-98), which presumably come from constructions proposed for like terms in claims 53 and

¹⁵ To address this phantom construction, Head appears to rely on a separate reference, *Freudiger 2* (Pet. at 15), but does not include *Freudiger 2* as a reference for Ground 1.

58.¹⁶ But Dr. Hull only mentions VSD’s Preliminary Constructions at the conclusion of his analysis of limitation [30(c)], then merely states that “without agreeing with these proposed constructions, *Freudiger-1* discloses, or at least renders obvious, these claim elements.” *Id.* ¶¶ 94-99. During his analysis of limitation [30(c)] in paragraphs 89-93, Dr. Hull does not address these constructions. For example, the proposed constructions include that “assess” requires providing “an indication of or a response to a magnitude and direction of the second loading,” but Dr. Hull does not discuss a magnitude and direction of the second loading in his analysis of limitation [30(c)].

Thus, here again, it is nearly impossible to discern how Head is construing limitation [30(c)] in the Petition or finding it present in the reference.

e. Limitation [30(d)]

Limitation [30(d)], according to the Hull Declaration, reads: “wherein said release logic is configured to: determine whether or not the release condition is

¹⁶ The relevant proposed constructions might be for the term “assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system” from claim 53 (and a similar term involving a second loading), which was “provide an indication of or a response to a magnitude and direction of the first loading at the first axis by permitting or causing movement of one or more mechanical components . . . when an external load, such as an impact on the snow, is applied to the ski.” See Ex. 1010 at 12, 13.

occurring as a function of both of the first loading and the second loading; and cause said ski binding assembly to provide said first release if the release logic determines that the release condition is occurring”. For this limitation, Head likewise fails to address in any way the constructions that it asks the Board to apply. While as noted this claim was not part of VSD’s Preliminary Constructions, it includes a term, “release condition,” that was. And the claim construction for “release condition” that Head stated the Board should analyze patentability under is: “[a] predetermined external loading of the ski correlated to an estimated skier tibial axis load level selected to lessen the likelihood of ACL injury.” Ex. 1010 at 6.

Head makes no attempt to show that *Freudiger 1* discloses (or renders obvious) the release condition required by the claim construction Head asks the Board to use since it does not address anything about the external loading being “*predetermined*” or being “*correlated to an estimated tibial axis load selected to lessen the likelihood of ACL injury*”. See Pet. at 17-18. Dr. Hull acknowledges VSD’s Preliminary Construction for “determine whether or not the release condition is occurring as a function of both the first loading and the second loading” (Ex. 1002 (Hull Decl.) ¶ 104 (presumably referring to the proposed construction for a term in claim 53 on page 14 of Ex. 1010)), but does not acknowledge, or apply, VSD’s Preliminary Construction for “release condition,” which is part of limitation [30(d)]. Nowhere in

the Petition or the Hull Declaration is there any discussion of the external loading being predetermined or related to the likelihood of ACL injury with regard to limitation [30(d)].

So, once again, Head provided neither how the claim should be construed, nor how the construed claim is unpatentable under the asserted statutory grounds. Either way, Head did not state enough to warrant institution.

f. Limitation [30(e)]

Limitation [30(e)], according to the Hull Declaration, reads: “wherein said ski binding assembly is configured to determine a force-couple at a third axis from said first loading and said second loading, and said release logic is configured to determine whether or not the release condition is occurring as a function of the force-couple”. Head does not provide a claim construction for this limitation, and this limitation is not included in VSD’s Preliminary Constructions. The other challenged claims do not include the term “a force-couple at a third axis,” so when Head instructed the Board to apply VSD’s Preliminary Constructions, it was sending the Board on a wild goose chase with regard to portions of limitation [30(e)].

For limitation [30(e)], then, Head does not state how the limitation should be construed in any way. The Hull Declaration is also devoid of guidance on this issue.

2. Claim 53**a. The Limitation(s) of Claim 53 That Are Missing From *Freudiger 1* Are Not Specified**

The Petition asserts that *Freudiger 1* “discloses, or at least renders obvious,” every limitation of claim 53. Pet. at 21-22.¹⁷ Dr. Hull also states that each limitation is “disclose[d] or at least render[ed] obvious” by *Freudiger 1*. Ex. 1002 (Hull Decl.) ¶¶ 114-120. Just as for claim 30, neither the Petition nor Dr. Hull ever specify which limitations of claim 53 are actually present (*i.e.*, disclosed) and which limitations require the POSITA to make some sort of modification of or addition to *Freudiger 1* to meet the limitation. As discussed above, this deficiency by itself is a sufficient reason to deny institution with regard to Ground 1 for claim 53. *See supra* Section V.B.

The deficiencies of Ground 1 of the Petition are further detailed below with respect to individual limitations of claim 53.

b. Limitations [53(a)]-[53(d)]

Limitations [53(a)]-[53(d)] are substantially the same as limitations [30(a)]-[30(d)] and Head simply refers back to its same flawed arguments for these limitations in claim 30 (Pet. at 21), so Head has failed to meet its institution burden for claim 53

¹⁷ On page 21 of the Petition, Head states that [53(e)] is disclosed, but then on page 22, states that “*Freudiger-1* discloses, or at least suggests, ‘said first release being an attenuated release relative to said second release’”.

under Ground 1 for at least the reasons given above for limitations [30(a)]-[30(d)] of claim 30 under Ground 1.

c. Limitation [53(e)]

Limitation [53(e)] essentially replaces limitation [30(e)] and reads, according to the Hull Declaration: “wherein said ski binding assembly has a second release, said first release being an attenuated release relative to said second release”. The Petition does not state how this limitation should be construed. If it is to be analyzed by the Board based on VSD’s Preliminary Constructions, the Petition does not mention that construction.

VSD’s Preliminary Construction for “a second release” in claim 53 is noted in the Hull Declaration. Ex. 1002 (Hull Decl.) ¶¶ 125-126.¹⁸ However, neither Dr. Hull nor the Petition apply this construction. For example, neither the Petition nor the Hull Declaration mention anything about “tibial spiral fractures” with regard to how limitation [53(e)] is supposedly taught by *Freudiger 1*. See Ex. 1010 at 15.

Adding to the lack of clarity regarding claim construction for this limitation, Head states that “the first release threshold in lateral force torsion is ‘reduced’

¹⁸ VSD’s Preliminary Construction was: “A mechanism of the ski binding assembly that allows separation of the ski boot from the ski automatically and without skier intervention (i.e., releases) in response to a predetermined external loading of the ski correlated to an estimated maximum tibial axis load level selected to lessen the likelihood of tibial shaft injuries such as tibial spiral fractures.” Ex. 1010 at 15.

compared to the second release threshold in pure torsion.” Pet. at 22-23. Putting aside the fact that *Freudiger 1* does not discuss any thresholds, Head does not explain why it places the word “reduced” in quotation marks. This suggests that Head intends “reduced” to convey something other than its plain meaning, but no other meaning is provided.¹⁹

3. Claim 58

a. The Limitation(s) of Claim 58 That Are Missing From *Freudiger 1* Are Not Specified

The Petition asserts that *Freudiger 1* “discloses, or at least renders obvious,” every limitation of claim 58. See Pet. at 23-27. Dr. Hull also states that each limitation is “disclose[d] or at least render[ed] obvious” by *Freudiger 1*. Ex. 1002 (Hull Decl. ¶¶ 130-132, 148. Just as for claims 30 and 53, neither the Petition nor Dr. Hull ever specify which limitations of claim 58 are actually present (*i.e.*, disclosed) and which limitations require the POSITA to make some sort of modification of or addition to *Freudiger 1* to meet the limitation. As discussed above, this deficiency by itself is a sufficient reason to deny institution with regard to Ground 1 for claim 58. See *supra* Section V.B.

¹⁹ The word “reduced” is not in claim 53 or any of VSD’s Preliminary Constructions, making it all the more confusing why Head and Dr. Hull would put quotation marks around it.

The deficiencies of Ground 1 of the Petition are further detailed below with respect to individual limitations of claim 58.

b. Limitations [58(a)]-[58(b)]

Limitations [58(a)]-[58(b)] are substantially the same as limitations [30(a)]-[30(b)] and [53(a)]-[53(b)] and Head relies on its same flawed arguments for these limitations (Pet. at 23), so Head has failed to meet its institution burden for claim 58 under Ground 1 for at least the reasons given above for limitations [30(a)]-[30(b)] of claim 30 under Ground 1.

c. Limitation [58(c)]

Limitation [58(c)], according to the Hull Declaration, reads “said release logic set to activate said first release substantially only when: a first loading, internal to the ski system along or about a first axis and caused by an external loading applied to the ski system, exceeds a first defined level and has a first defined sense; and a second loading, internal to the ski system along or about a second axis and caused by the external loading, exceeds a second defined level and has a second defined sense”.

The Petition does not state how this limitation is to be construed. At one point in the discussion of this limitation, for the only time in the entire Petition with respect to any limitation, Head does reference VSD’s Preliminary Constructions for parts of this limitation (namely, the “first defined sense” and the “second defined sense”). Pet.

at 26. However, Head prefaces this by stating, “Patent Owner appears to contend”, thus remaining unclear about what it considers the claim construction to be. *Id.* At the same time, Head ignores the other aspects of VSD’s Preliminary Constructions for limitation [58(c)], including for “first defined level” and “second defined level”, which require that there is a magnitude of a loading corresponding to a release setting of the binding at the defined release condition. Ex. 1010 at 25, 27. In other words, both the magnitude and direction are part of a defined “release setting” in VSD’s Preliminary Constructions. *Id.* The Petition does not mention a release setting with regard to this limitation, so even when Head nods to the constructions it is purporting to apply, it does not actually seem to apply them.

d. Limitation [58(d)]

Limitation [58(d)] is addressed only based on its substantial similarity to limitation [53(e)] and so Head has failed to meet its institution burden for claim 58 under Ground 1 for at least the reasons given above for limitation [53(e)] of claim 53 under Ground 1.

4. Dependent Claims 31, 34, 35, 37, 55, and 59 in View of *Freudiger 1*

Claims 31, 34, 35, and 37 depend from claim 30 and, at least by virtue of their dependency on claim 30, Head’s challenge under Ground 1 should be rejected for these claims for at least the reasons given above with respect to claim 30.

Claim 55 depends from claim 53 and, at least by virtue of its dependency on claim 53, Head's challenge under Ground 1 should be rejected for this claim for at least the reasons given above with respect to claim 53.

Claim 59 depends from claim 58 and, at least by virtue of its dependency on claim 58, Head's challenge under Ground 1 should be rejected for this claim for at least the reasons given above with respect to claim 58.

5. Ground 2 - Dependent Claims 36, 38, 54, 56, and 60 in View of *Freudiger 1* and *Gulick*

Gulick discloses a learning binding system in which release settings are variable in real-time while a skier is skiing based on forces encountered during skiing. Ex. 1008 (*Gulick*) at 30-32. Head relies on *Gulick* for the limitations in claims 36, 38, 54, 56, and 60 that quantify how attenuated the first release is with respect to the second release, *i.e.*, at least 20% less.²⁰

²⁰ As noted, although VSD disagrees with the conclusion, Head presents an actual obviousness analysis for these claims, acknowledging that “*Freudiger-1* does not quantify the reduction of the release threshold for the first release” (Pet. at 36), and spending several pages on purported reasons to modify the binding of *Freudiger 1* with the release reduction levels disclosed in *Gulick*. This is noteworthy as a contrast to Head's approach to independent claims 30, 53, and 58, in which the asserted ground is obviousness yet Head did not provide an obviousness analysis as it did for these dependent claims. Unfortunately for Head, a possibly proper obviousness analysis for a few dependent claims is not a substitute for proper analysis of the independent claims.

Claims 36 and 38 depend from claim 30 and therefore, at least based on the reasons discussed above for claim 30 for Ground 1, Head's challenge under Ground 2 should be rejected.

Claims 54 and 56 depend from claim 53 and therefore Head's challenge under Ground 2 should be rejected for these claims for at least the reasons given above with respect to claim 53.

Claim 60 depends from claim 58 and therefore Head's challenge under Ground 2 should be rejected for claim 60 for at least the reasons given above with respect to claim 58.

D. Grounds 3-4 Should Be Rejected Because the Petition Fails to Provide an Obviousness Analysis for any Combination of *Dodge* and *Howell* or State How the Claims Should be Construed

Ground 3 proposes to combine *Dodge* (Ex. 1005) and *Howell* (Ex. 1007) to show unpatentability of the challenged independent claims. Ground 4 again adds *Gulick* (Ex. 1008) to address just certain dependent claims. However, once again, it is unclear which elements Head contends are present in the cited references, which are missing, and which would have been obvious to provide by combination or modification. In fact, it is not even clear why Head proposes to combine *Dodge* and *Howell* at all given that the Petition seems to assert that each of *Dodge* and *Howell*

individually disclose, or render obvious, every single limitation of the challenged independent claims:

Claim Limit.	Asserted Disclosure of <i>Dodge</i>	Asserted Disclosure of <i>Howell</i>
[30(Pr)]	“To the extent the preamble is limiting, <i>Dodge</i> discloses this element” (Pet. at 46)	“ <i>Howell</i> similarly discloses an ‘alpine ski binding’ with a laterally-releasable heel unit” (Pet. at 46)
[30(a)]	“ <i>Dodge</i> discloses, or at least renders obvious, [30(a)]” (Pet. at 47)	“ <i>Howell</i> similarly discloses this element” (Pet. at 48)
[30(b)]	“ <i>Dodge</i> discloses, or at least renders obvious, [30(b)]” (Pet. at 48)	“ <i>Howell</i> also discloses release logic mechanisms” (Pet. at 51)
[30(c)]	“ <i>Dodge</i> discloses, or at least renders obvious, [30(c)]” (Pet. at 51)	“ <i>Howell</i> similarly discloses, or renders obvious, this element” (Pet. at 53)
[30(d)]	“ <i>Dodge</i> discloses, or at least renders obvious, [30(d)]” (Pet. at 55)	“ <i>Howell</i> similarly discloses, or renders obvious, this element” (Pet. at 58)
[30(e)]	“ <i>Dodge</i> discloses, or at least renders obvious, [30(e)]” Pet. at 59)	“ <i>Howell</i> similarly discloses, or renders obvious, this element” (Pet. at 60)
[53(Pr)]-[53(d)]	“ <i>Dodge</i> and <i>Howell</i> disclose, or at least render obvious, these elements” (Pet. at 61)	
[53(e)]	“ <i>Dodge</i> discloses this element” (Pet. at 61)	“ <i>Howell</i> similarly discloses, or renders obvious, this element” (Pet. at 62)
[58(Pr)]-[58(b)]	“These elements are substantially identical to [30(Preamble)]-[30(b)] and [53(Preamble)]-[53(b)] above. Accordingly, . . . <i>Dodge</i>	NB: for reasons not explained, this assertion is not repeated for <i>Howell</i> even though it was made for the substantially identical elements in

	discloses, or at least renders obvious, these elements” (Pet. at 63)	claims 30 and 53 (<i>see</i> Pet. at 46, 48, 51, 61)
[58(c)]	“ <i>Dodge</i> discloses, or at least renders obvious, [58(c)]” (Pet. at 63)	“ <i>Howell</i> similarly discloses, or renders obvious, this element” (Pet. at 67)
[58(d)]	“This element is substantially identical to element [53(e)], discussed above. . . . <i>Dodge</i> discloses this element” (Pet. at 67)	NB: for reasons again not explained, this assertion is not repeated for <i>Howell</i> even though it was made for the supposedly “substantially identical” element [53(e)] (Pet. at 62) ²¹

If such is the case, why would *Dodge* and *Howell* need to be combined? While the Petition includes a section captioned “Rationale for Combining *Dodge* and *Howell*” (Pet. at 45), this section is separate from the actual analysis of any particular claim or claim limitations, mentions no specific claim limitations, and does not identify which elements of *Dodge* should be combined with which elements of *Howell* or *vice versa*. This deficiency is not remedied when the challenged independent claim limitations are later addressed, as the Petition does not explain any differences between these references and the claims, or acknowledge which limitations are not disclosed by *Dodge* or *Howell*.

²¹ If one were cynical, it could be thought that the words “and *Howell*” were twice omitted because including those four additional words would have prevented certification of not more than 14,000 words total given that 13,998 were certified. *See* Pet. at 97.

Instead of providing a clear and specific statement of a reason to modify one of the references with the other to meet a missing claim limitation, the Petition generically asserts that “[a]ny modification of *Dodge*, including implementing *Howell*’s heel binding components, would have been within a POSITA’s skillset.” *Id.* However, it is not enough to assert any modification of *Dodge* could be made; what is required is to identify a particular modification and explain why that particular modification would be made. Moreover, it is especially insufficient in an IPR proceeding, which requires particularity in identifying claim limitations and bases for combinations to meet claim limitations. *See, e.g., ADT LLC v. Vivint, Inc.*, IPR2022-00642, Paper 7 at 15 (PTAB Oct. 4, 2022) (“Although ADT provides a rationale to combine the teachings of Ulrich and Mathias, the reasoning provided is generic and does not clarify sufficiently which teachings from each reference it combines to account for all the limitations of [the challenged claims].”). Therefore, any rationale for combining the “heel binding components” of *Howell*—whatever those may be²²—with the ski binding of *Dodge* is inapposite. By not identifying the differences between the claims and the cited references, Head has not addressed one

²² The example given of “heel binding components” is not a limitation in any of the challenged claims.

of the required *Graham* factors and thus failed to present an obviousness analysis for any of the claims challenged under Grounds 3-4.

Further, as noted above, Head fails to use the claim constructions that it states the Board should use to analyze patentability, that is, VSD’s Preliminary Constructions. Finally, for each claim, Head neglects to acknowledge and address the fact that the parties dispute whether the “release logic” term should be interpreted as a means-plus-function term. *See supra* Section V.A.2.

1. Claim 30

**a. The Limitation(s) of Claim 30 That Are Missing From
Dodge and *Howell* Are Not Specified**

As summarized in the table above, the Petition fails to identify which of the limitations of claim 30 are not disclosed by *Dodge* and/or which limitations are not disclosed by *Howell*. As discussed, such failings render Head’s obviousness contentions insufficient.

This makes it impossible to determine what Head’s obviousness argument is, since the aspects of claim 30 that are not disclosed by *Dodge* are not identified. Further, if one were to assume that “at least renders obvious” is to be interpreted as the limitation is not disclosed by *Dodge*, Head appears to be stating that *Dodge* is the reference that provides the teaching that allows *Dodge* to be modified to reach these limitations. But no rationale for any such modification is given.

Similarly, for each limitation of claim 30, Head states that it is disclosed or rendered obvious by *Howell*. Since for each of both *Dodge* and *Howell*, according to Head, each limitation of claim 30 is either disclosed or rendered obvious, there is no basis for combining any part of *Howell* with any part of *Dodge*. Head has not explained what parts of *Dodge* and *Howell* would have been combined by a POSITA, and thus has failed to present an obviousness analysis for the combination of *Dodge* and *Howell* for claim 30. To the extent that Head contends that *Dodge* alone renders claim 30 obvious, which is not a ground it presented in the Petition, Head has failed to present such an obviousness analysis as well. The same holds true for *Howell* alone.

This incomplete approach to obviousness warrants denial of the Petition. The Board denied institution of a petition that took this same approach in *ADT LLC v. Vivint, Inc.*, IPR2022-00642, Paper 7 at 13, 19-20 (PTAB Oct. 4, 2022). In *ADT*, the petitioner argued that a set of claims would have been obvious over the combination of a first reference and a second reference, but then mapped each limitation of each claim to both of the references independently. *Id.* at 13. The Board found that, because the petitioner expressly relied on the “combination” of the two references “but map[ped] each limitation of the challenged claims to each reference without acknowledging any shortcomings or deficiencies of the references,

it [was] not clear which teachings of each reference [the petitioner] combines to account for all the limitations of [the] claims.” *Id.* In denying institution, the Board reasoned:

To the extent ADT expects us to scour the prior art references and piece together an obviousness ground based on “the combination of Ulrich and Mathias,” or ignore ADT’s express framing of this obviousness ground and rely on the teachings of either reference alone, we decline to do so. It is well-settled that ADT—as the Petitioner—is “master of its complaint.” *SAS Inst.*, 138 S. Ct. at 1355. We are constrained by the arguments and evidence presented and developed in ADT’s Petition, and we are not at liberty to “raise, address, and decide . . . theories never presented by [ADT] and not supported by record evidence.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016). . . . Although “a patent can be obvious in light of a single prior art reference,” the Federal Circuit has held that a single-reference obviousness ground requires that “it would have been obvious to modify that reference to arrive at the patented invention.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016). ADT has not framed this asserted obviousness ground as based on a single-reference nor explained why it would have been obvious to modify the teachings of Ulrich or Mathias alone for a single-reference obviousness ground.

Id. at 14.

The Board should apply the reasoning of *ADT* here and deny institution because Head has not presented a proper obviousness analysis for any of the independent claims. *See also Matterport, Inc. v. Appliance Computing III, Inc.*, IPR2021-00939, Paper 15 at 16-17 (PTAB Nov. 23, 2021) (denying institution because “Petitioner does not identify differences between [two prior art references]

and [the claim element] or how Petitioner proposes to combine or modify the asserted prior art to meet [the claim element]”); *Shenzhen Jimuyida Tech. Co., Ltd. V. Artec Europe S.A.R.L.*, IPR2023-01148, Paper 6 at 19-20 (PTAB Jan. 16, 2024) (“Petitioner’s vague and conclusory analysis is compounded by the fact that, as noted above, Petitioner asserts that each reference discloses each limitation. This leaves the Board guessing what modifications Petitioner proposes as to any reference. . . . In addition, by failing to specify any particular combination, Petitioner effectively presents a myriad of combinations, tacitly inviting the Board to sift through the references and discern a potentially invalidating combination out of the many possible combinations.”).²³

The deficiencies of Ground 3 of the Petition are further detailed below with respect to individual limitations of claim 30.

b. Limitation [30(a)]

The Petition’s treatment of this limitation for Ground 3 with respect to both *Dodge* and *Howell* suffers from substantially the same shortcomings as its treatment

²³ It is also noted that the lack of clarity in Head’s obviousness grounds regarding combining *Dodge* and *Howell* “might enable [Head] to deviate from the arguments initially presented in the Petition in a manner that may prejudice [VSD].” *ADT*, IPR2022-00642, Paper 7 at 14 (citing *Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017) (explaining that “[s]hifting arguments” during the course of a trial are “foreclosed by statute, [Federal Circuit] precedent, and Board guidelines”)).

of this limitation for Ground 1 with respect to *Freudiger 1*. See *supra* Section V.C.1.b. That is, the Petition does not mention VSD’s Preliminary Constructions (see Pet. at 47-48) and Dr. Hull merely recites the relevant construction for “first release” (Ex. 1002 (Hull Decl.) ¶ 218) without clearly applying it.

c. Limitation [30(b)]

The Petition’s treatment of this limitation for Ground 3 with respect to both *Dodge* and *Howell* suffers from substantially the same shortcomings as its treatment of this limitation for Ground 1 with respect to *Freudiger 1*. See *supra* Section V.C.1.c. Namely, [30(b)] includes the term “release logic,” which Head is contending in the district court should be construed as a means-plus-function term under Section 112(f), but that is not addressed in the Petition. Also, the Petition does not mention VSD’s Preliminary Constructions (see Pet. at 48-51) and Dr. Hull merely recites them (Ex. 1002 (Hull Decl.) ¶¶ 226-227), but does not apply them (*e.g.*, Dr. Hull does not explain where in *Dodge* or *Howell* there is any disclosure for a “predetermined external loading” or teaching regarding “lessen[ing] the likelihood of ACL injury”) in the context of this limitation.²⁴

²⁴ In paragraph 225 of Ex. 1002, Dr. Hull contends that *Howell* discloses a release with a binding that releases when “the boot’s heel overcomes a threshold which may strain or rupture the ACL.” Ex. 1002 (Hull Decl.) ¶ 225 (citing Ex. 1007 (*Howell*), claim 13). However, VSD is unable to find such a teaching in claim 13 of *Howell*, which does not mention the ACL.

d. Limitation [30(c)]

The Petition's treatment of this limitation for Ground 3 with respect to both *Dodge* and *Howell* suffers from substantially the same shortcomings as its treatment of this limitation for Ground 1 with respect to *Freudiger 1*. See *supra* Section V.C.1.d. That is, the Petition does not mention VSD's Preliminary Constructions (see Pet. at 51-54) and Dr. Hull merely recites them (Ex. 1002 (Hull Decl.) ¶¶ 235-239), but makes no effort to apply them (*id.* ¶ 240).

e. Limitation [30(d)]

The Petition's treatment of this limitation for Ground 3 with respect to both *Dodge* and *Howell* suffers from substantially the same shortcomings as its treatment of this limitation for Ground 1 with respect to *Freudiger 1*. See *supra* Section V.C.1.e. In particular, for example, no claim construction is provided and the applicable construction from VSD's Preliminary Constructions is not mentioned (see Pet. at 55-58). Again, Dr. Hull notes that construction (Ex. 1002 (Hull Decl.) ¶ 247), but makes no effort to apply it (*id.* ¶ 248).

f. Limitation [30(e)]

The Petition's treatment of this limitation for Ground 3 with respect to both *Dodge* and *Howell* suffers from the same shortcomings as its treatment of this limitation for Ground 1 with respect to *Freudiger 1*. See *supra* Section V.C.1.f. In

particular, for example, no claim construction is provided (*see* Pet. at 59-61) and there is no applicable VSD Preliminary Construction to look to. The Hull Declaration provides no guidance regarding how the limitation should be construed either. *See* Ex. 1002 (Hull Decl.) ¶¶ 249-254.

2. Claim 53

a. The Limitation(s) of Claim 53 That Are Missing From *Dodge* and *Howell* Are Not Specified

As summarized in the table above (*see supra* Section V.D), the Petition fails to identify which of the limitations of claim 53 are not disclosed by *Dodge*. The Petition also fails to identify which limitations are not disclosed by *Howell*. This renders Head's obviousness contentions insufficient.

The deficiencies of Ground 3 of the Petition are further detailed below with respect to individual limitations of claim 53.

b. Limitations [53(a)]-[53(d)]

Limitations [53(a)]-[53(d)] are substantially the same as limitations [30(a)]-[30(d)] and the Petition is deficient with respect to Ground 3 for *Dodge* and *Howell* for the reasons given above. *See supra* Sections V.C.1.b-e.

c. Limitation [53(e)]

The Petition's treatment of this limitation for Ground 3 with respect to both *Dodge* and *Howell* suffers from substantially the same shortcomings as its treatment

of this limitation for Ground 1 with respect to *Freudiger 1* for the reasons given above. *See supra* Section V.C.2.c. In particular, for example, no claim construction is provided and the applicable construction from VSD's Preliminary Constructions is not mentioned (*see* Pet. at 61-63). And again, Dr. Hull notes that construction (Ex. 1002 (Hull Decl.) ¶¶ 262-263), but makes no effort to apply it (*id.* ¶ 264). For this additional reason, Head has not met its institution burden for claim 53 under Ground 3.

3. Claim 58

a. The Limitation(s) of Claim 58 That Are Missing From *Dodge and Howell* Are Not Specified

As summarized in the table above (*see supra* Section V.D), the Petition fails to identify which of the limitations of claim 58 are not disclosed by *Dodge and Howell*. As discussed, this renders Head's obviousness contentions insufficient.

The deficiencies of Ground 3 of the Petition are further detailed below with respect to individual limitations of claim 58.

b. Limitations [58(a)]-[58(b)]

Limitations [58(a)]-[58(b)] are substantially the same as limitations [30(a)]-[30(b)] and [53(a)]-[53(b)], and the Petition is deficient with respect to Ground 3 for *Dodge and Howell* for the reasons given above. *See supra* Sections V.C.1.b-c.

c. Limitation [58(c)]

Head does not state with clarity how limitation [58(c)] should be construed. The Petition states that the “Patent Owner appears to contend that the first and second defined senses refer to the directions in which the first and second loadings are applied,” but is not clear whether this is an applied construction of the limitation. *See* Pet. at 65. Further, Head cites to the Hull Declaration (not to VSD’s Preliminary Constructions) for support for its “appears to contend” statement. *Id.* This does not qualify as stating how a claim is to be construed.²⁵

This shortcoming is exacerbated by the fact that Head later states that, regarding this same limitation, “to the extent Patent Owner attempts to improperly limit this element to a sequential (rather than parallel) operation, *Howell* discloses or renders obvious this element” *Id.* at 67. No support for this construction is provided. It is not clear whether Head is stating that the Board should use this construction. It is clear that Head disagrees with it. For this additional reason, Head has not met its institution burden for claim 58 under Ground 3.

²⁵ Dr. Hull presents VSD’s Preliminary Constructions and even appears to apply them to some extent to this limitation. *See* Ex. 1002 (Hull Decl.) ¶¶ 272-282. However, the Petition itself does not make these arguments, and it is improper to incorporate such argument by reference. 37 C.F.R. § 42.6(a)(3); *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 10 (PTAB Aug. 29, 2014) (informative).

d. Limitation [58(d)]

Limitation [58(d)] is similar to limitation [53(e)], and Head's obviousness analysis is flawed for the reasons discussed above with respect to limitation [53(e)].
See supra Section V.C.2.c.

**4. Dependent Claims 31, 34, 35, 37, 55, and 59 in View of
*Dodge and Howell***

Claims 31, 34, 35, and 37 depend from claim 30 and, at least by virtue of their dependency on claim 30, Head's challenge under Ground 3 should be rejected for these claims for at least the reasons given above with respect to claim 30.

Claim 55 depends from claim 53 and, at least by virtue of its dependency on claim 53, Head's challenge under Ground 3 should be rejected for this claim for at least the reasons given above with respect to claim 53.

Claim 59 depends from claim 58 and, at least by virtue of its dependency on claim 58, Head's challenge under Ground 3 should be rejected for this claim for at least the reasons given above with respect to claim 58.

**5. Ground 4: Dependent Claims 36, 38, 54, 56, and 60 in View
of *Dodge, Howell, and Gulick***

Claims 36 and 38 depend from claim 30 and therefore Head's challenge under Ground 4 should be rejected for these claims for at least the reasons given above with respect to claim 30.

Claims 54 and 56 depend from claim 53 and therefore Head's challenge under Ground 4 should be rejected for these claims for at least the reasons given above with respect to claim 53.

Claim 60 depends from claim 58 and therefore Head's challenge under Ground 4 should be rejected for claim 60 for at least the reasons given above with respect to claim 58.

E. Grounds 5-6: The *Sittmann* Grounds Should Be Rejected

Sittmann (Ex. 1006) discloses a ski binding system having a lateral toe release and a lateral heel release in which the heel release only releases the ski boot if the heel is first lifted up vertically. Ex. 1006 at 3. *Sittmann* is silent with regard to the relative thresholds of these heel and toe releases.

Head challenges independent claim 58 and dependent claim 59 in Ground 5 as being obvious in view of *Sittmann* alone, and dependent claim 60 in Ground 6 as being obvious in light of *Sittmann* in view of *Gulick*.

The Petition once again fails to present a proper obviousness analysis for independent claim 58 for the same reasons discussed above in connection with *Freudiger 1*: Head fails to identify which limitations of claim 58 are not disclosed by *Sittmann*, which again is an insufficient obviousness analysis for the reasons given above. *See supra* Section V.B. In addition, the Petition does not state how

the claim should be construed and neglects to address the Section 112(f) issue Head knows is in dispute regarding the “release logic” term. *See supra* Section V.A.

1. Claim 58

a. The Limitation(s) of Claim 58 That Are Missing From *Sittmann* Are Not Specified

The Petition states the following about the limitations of claim 58 in the context of *Sittmann* under Ground 5:

- *Sittmann* “discloses or renders obvious” limitation [58(a)] (Pet. at 78);
- *Sittmann* “discloses” limitation [58(b)] (*id.* at 80);
- *Sittmann* “discloses or renders obvious” limitation [58(c)] (*id.* at 81); and
- *Sittmann* “discloses or at least renders obvious” limitation [58(d)] (*id.* at 84).

Thus, Head fails to identify which limitations are not present in *Sittmann* and does not provide a reason to modify *Sittmann* in such a way as to arrive at the claimed invention.

The deficiencies of Ground 5 of the Petition are further detailed below with respect to individual limitations of claim 58.

b. Limitation [58(a)]

Head does not state how this limitation should be construed. Head says the heel binding corresponds to the “first release” (Pet. at 80), but never sets forth how

Sittmann's heel binding meets the “first release” under VSD's Preliminary Constructions, which, among other things, requires a “predetermined” loading of the ski correlated to “lessen the likelihood of ACL injury” (Ex. 1010 at 3). Dr. Hull notes VSD's Preliminary Construction for limitation [58(a)], but does not apply it. Ex. 1002 (Hull Decl.) ¶ 333.

c. Limitation [58(b)]

Head does not state how this limitation should be construed or acknowledge that there is a dispute over whether the term “release logic” implicates Section 112(f). *See* Pet. at 80; *supra* Section V.A.2. Dr. Hull does provide VSD's Preliminary Construction for limitation [58(c)], but again does not apply it. Ex. 1002 (Hull Decl.) ¶ 336.

d. Limitation [58(c)]

In the Petition, Head does not offer a construction for this limitation and ignores VSD's Preliminary Constructions that it instructed the Board to apply. Specifically, VSD's Preliminary Constructions require that the first and second axes are “substantially perpendicular” to the plane of the ski. Ex. 1010 at 8, 9. *Sittmann* does not disclose this, so in the Petition Head simply ignores the very constructions it told the Board to apply. *See* Pet. at 81-84.

When addressing this limitation with respect to *Sittmann*, Dr. Hull states that he disagrees with VSD’s proposed constructions requiring that the first and second axes are “substantially perpendicular” to the plane of the ski, and so does not apply them—or even state that the limitation is met under those constructions. Ex. 1002 (Hull Decl.) ¶ 342. This not only contradicts Head’s instruction for the Board to apply VSD’s Preliminary Constructions, but also contradicts Head’s suggestion that “no terms need construction to resolve the controversy in this forum”. Pet. at 6.

Head also adds more confusion by introducing another possible construction for which there is no cited basis, stating “[t]o the extent Patent Owner attempts to improperly limit the claims to a sequential operation” Pet. at 83. This is yet another way in which it is impossible to know how Head is actually construing the claims for its analysis. Indeed, for this limitation alone, Head floats four ways to construe it:

- No construction needed (Pet. at 6)
- VSD’s Preliminary Constructions (Pet. at 6)
- Dr. Hull’s modified VSD Preliminary Construction (Ex. 1002 ¶ 342)
- A speculative construction of unknown origin (Pet. at 83)

If review is instituted, perhaps Head will come up with others.

e. Limitation [58(d)]

The Petition does not state how this limitation should be construed. Pet. at 84-85. Dr. Hull does provide VSD's Preliminary Constructions for limitation [58(d)], (Ex. 1002 (Hull Decl.) ¶¶ 356-357), but does not connect the terms in the noted construction to the disclosure of *Sittmann*.

2. Dependent Claim 59 in View of *Sittmann*

Claim 59 depends from claim 58 and, at least by virtue of its dependency on claim 58, Head's challenge under Ground 5 should be rejected for this claim for at least the reasons given above with respect to claim 58.

3. Ground 6: Dependent Claim 60 in View of *Sittmann* and *Gulick*

Claim 60 depends from claim 58 and therefore Head's challenge under Ground 6 should be rejected for claim 60 for at least the reasons given above with respect to claim 58.

VI. INSTITUTION SHOULD BE DENIED UNDER 35 U.S.C. § 314(a)

The Board should deny institution pursuant to 35 U.S.C. § 314(a) because the Petition does not present a "compelling", meritorious challenge and the *Fintiv* factors favor discretionary denial. See *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5-6 (PTAB Mar. 20, 2020) (precedential); Memo re Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court

Litigation (“Vidal Memo”), at 4 (June 21, 2022). “Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” Vidal Memo at 4. Here, Head fails to demonstrate even a reasonable likelihood of prevailing on its challenges to the ’953 Patent claims. Discretionary denial is therefore warranted.

A. *Fintiv* Factor 1 (Stay) Should Be Given Little Weight

The district court case is stayed pending the institution decision. However, Head has not offered a *Sotera* stipulation and the district court’s order does not reflect any analysis of Head’s invalidity positions. Ex. 2004 (Stay Order) at 3-11; *see also infra* Section VI.D. The Board should therefore give this factor little weight.

B. *Fintiv* Factor 2 (Trial Date Proximity) Is Neutral

If instituted, the Board’s projected deadline for a final written decision would likely be in January 2026. Before the district court case was stayed on August 19, 2024, the case was scheduled to be trial-ready by October 2025. Ex. 2005 (District Court Schedule) at 4. If the Board denies institution, the district court case will likely be ready for trial around March 2026, assuming an approximate delay of five months. This factor is neutral.

C. *Fintiv* Factor 3 (Investment in District Court Proceedings) Favors Denying Institution

Investment in key issues in the district court case has been significant. The parties have already served infringement and invalidity contentions and were in the process of preparing claim construction briefs and preparing for a claim construction hearing when the case was stayed. *Fintiv Factor* 3 therefore weighs against institution.

D. *Fintiv* Factor 4 (Overlap of Issues) Favors Denying Institution

Head did not stipulate that it will forgo raising the same invalidity grounds in district court as raised here. “If the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial.” Vidal Memo at 7; *see also Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18-19 (PTAB Dec. 1, 2020). In district court, Head made invalidity challenges based on the same five references that are raised here. Ex. 2006 (Head’s Initial Invalidity Contentions) at 7-10. Head had the opportunity to—but did not—file a *Sotera* stipulation when it filed the Petition. Any stipulation offered belatedly after filing the Petition should not be considered. *NXP USA, Inc. v. Impinj, Inc.*, IPR2021-01556, Paper 12 at 8-9 (PTAB Aug. 25, 2022). *Fintiv* Factor 4 weighs against institution.

E. *Fintiv* Factor 5 (Whether Petitioner and Defendant are the Same) Favors Denying Institution

The petitioner in this proceeding is the defendant in the parallel district court proceeding. *See Google LLC v. Ikorongo Tech. LLC*, IPR2021-00204, Paper 13 at 12 (PTAB June 7, 2021) (“Given the identity of the real parties-in-interest in this proceeding and WDTex cases, we find this factor favors denial of institution.”). *Fintiv* Factor 5 therefore weighs against institution.

F. *Fintiv* Factor 6 (Other Considerations) Favors Denying Institution

Head waited nearly a full year after service of a Complaint before filing a Petition on grounds that are cumulative of the alleged prior art and arguments that Head is asserting in the district court, and without filing a *Sotero* stipulation. Moreover, as set forth above, the merits of the grounds set forth in the Petition do not even come close to the statutory threshold of a “reasonable likelihood”, much less the higher “compelling merits” threshold. *See Vidal Memo* at 4.

In addition, Head’s counsel has knowingly abused the Board’s rules regarding the word limit. VSD thanks the Board for allowing it to submit an extra 2,000 words in this Patent Owner Preliminary Response because of Head deleting spaces in citations (Paper 7 at 2-5), but it is relevant here that Head *knowingly* abused the Board’s word limit rules. This is evident at least because Head’s counsel has argued in a Patent Owner Preliminary Response in a previous case that deleting spaces

between words is an abuse of the Board’s rules. *See Draftkings, Inc. v. Interactive Games LLC*, IPR2020-01108, Paper 6 at 42-43 (PTAB Oct. 9, 2020) (“Petitioner uses formatting tricks for its citations, e.g., ‘Ex.1003[¶¶ 166-68, 268-69]’ instead of ‘Ex. 1003 [¶¶ 166-68, 268-69],’ to circumvent the word limit The Board has repeatedly warned against this type of abuse, and it should weigh against institution.”); *see also id.* at 1 (listing counsel that overlap with Head’s counsel).

Head’s counsel similarly knows that incorporating claim language by reference and instead merely referencing shorthand labels for claim elements (*e.g.*, “[30(a)]”) is—as they have argued—an improper measure “to reduce word count at the expense of clarity.” *Id.* at 43-44 (Head’s counsel arguing in a previous POPR that “remov[ing] claim element descriptions into a separate document and merely referenc[ing] shorthand notations as headers in the petition” improperly reduces word count “at the expense of clarity”). As set forth in VSD’s Brief on Head’s Improper Incorporation by Reference, the Petition incorporates claim elements and claim constructions by reference, therefore also incorporating arguments that the construed claim elements are unpatentable (Paper 8 at 1-3), which has prejudiced VSD (*id.* at 4-5 (citing *Cisco*, IPR2014-00454, Paper 12 at 8-10)). The Petition itself does not identify “[h]ow [each] construed claim is unpatentable” or “where each element of [each] claim is found in the prior art” as required by Rule 42.104(b)(4)

because the construed claim elements are never provided in the Petition. The Petition also fails to satisfy Rule 42.104(b)(5) because it does not identify the relevant claim elements or their constructions, thereby rendering meaningless its conclusive assertions that prior art references allegedly disclose the claim elements. *See also supra* Section V.A. (explaining the Petition's failure to satisfy Rule 42.104(b)(3)). While the Petition's failures to satisfy Rule 104 should result in no filing date being accorded (37 C.F.R. § 42.106(a)(1) and (b)), at the very least, these failures should weigh heavily against institution.

Granting institution under these circumstances improperly incentivizes petitioners to use unusual citation forms and other non-standard formatting tricks to squeeze more text into the word count at the expense of clarity and conciseness. This practice improperly increases the burden on the Board and the patent owner. While it is clearly contrary to the rules and Trial Practice Guide, there is currently little downside for a petitioner if the worst possible outcome of such conduct is an award of extra words to the patent owner. The failure to comply with clear, basic formatting requirements, as the Petitioner did here, should thus be a further factor heavily weighted towards denial.

The Board should deny institution because *Fintiv* Factors 3, 4, 5, and 6 all weigh in favor of discretionary denial under § 314(a).

VII. CONCLUSION

Against clear advice from the Board that it should not just submit “a repository of all the information that a judge could possibly consider,” this is exactly what Head has done. See Trial Practice Guide at 39. In Head’s Petition, there are no “concise, well-organized, easy-to-follow arguments supported by readily identifiable evidence of record.” *Id.* It is Head’s burden and Head’s burden alone to persuade the Board there is a reasonable likelihood that it could prevail on at least one challenged claim. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in IPR). Head’s confused and prolix repository of assertions about the cited references, largely unconnected to any specific construction of the claims, does not carry Head’s burden.

For all of the reasons stated above, the Board should deny Head’s Petition for IPR of the ’953 Patent.²⁶

²⁶ If trial is instituted, VSD reserves the rights to raise additional arguments and present facts and expert testimony as to why Head has failed to carry its burden and why the challenged claims should be confirmed.

Patent Owner Preliminary Response
IPR2024-01099
U.S. Patent No. 7,523,953

Dated: October 17, 2024

Respectfully submitted,

By: /Thomas D. Kohler/

Reg. No. 32,797

Shawn T. Gordon

Reg. No. 56,196

Taylor E. Hallowell

Reg. No. 80,027

Counsel for Patent Owner

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the foregoing Patent Owner Preliminary Response contains 15,771 words (16,000 words permitted by the Board Order of September 13, 2024 (Paper 7 at 7)), excluding those portions identified in 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: October 17, 2024

Respectfully submitted,

By: /Taylor E. Hallowell/
Taylor E. Hallowell
Reg. No. 80,027

CERTIFICATION OF SERVICE UNDER 37 C.F.R. § 42.6(e)

I, Thomas D. Kohler, hereby certify that on this 17th day of October 2024, the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE TO PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,523,953** was served electronically via email on the following:

Aaron.Parker@finnegan.com
Anthony.Berlenbach@finnegan.com
parkeraj@finnegan.com
Head-VSD-IPR@finnegan.com

Dated: October 17, 2024

By: /Thomas D. Kohler/
Thomas D. Kohler
Reg. No. 32,797

Downs Rachlin Martin PLLC
Attn: Thomas D. Kohler
199 Main Street
P.O. Box 190
Burlington, VT 05402-0190
Tel: (802) 863-2375
Fax: (802) 862-7512