

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LULULEMON ATHLETICA CANADA INC.
and LULULEMON USA INC.,
Petitioner,

v.

NIKE, INC.,
Patent Owner.

IPR2023-00348
Patent 10,188,930 B2

Before JOSIAH C. COCKS, GEORGE R. HOSKINS, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

lululemon athletica canada inc. and lululemon usa inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1, 5–7, and 12 (“Challenged Claims”) of U.S. Patent No. 10,188,930 B2 (Ex. 1001, “the ’930 patent”). Nike, Inc. (“Patent Owner”) timely filed a Preliminary Response to the Petition. Paper 12 (“Prelim. Resp.”); *see* Paper 7, 2. We instituted an *inter partes* review of claims 1, 5–7, and 12 of the ’930 patent on all grounds of unpatentability alleged in the Petition. Paper 13 (“Institution Decision” or “Dec.”).

After institution, Patent Owner filed a Response. Paper 20 (“PO Resp.”). Petitioner filed a Reply. Paper 24 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 25 (“PO Sur-reply”). We held an oral hearing in this case on April 4, 2024, and a transcript of the hearing is included in the record. Paper 33 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6 (2018). Under the applicable evidentiary standard, Petitioner has the burden to prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2022). “Preponderance of the evidence means the greater weight of evidence, evidence which is more convincing than the evidence which is offered in opposition to it.” *U.S. v. C.H. Robinson Co.*, 760 F.3d 1376, 1383 (Fed. Cir. 2014) (internal quotations omitted). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons discussed below, we determine Petitioner has established by a preponderance of the evidence that claims 1, 5–7, and 12 of the ’930 patent are unpatentable.

II. BACKGROUND

A. Related Matters

The parties indicate that Patent Owner asserted the '930 patent against Petitioner in a U.S. district court action, namely, *Nike, Inc. v. lululemon athletica inc. et al.*, Case No. 1:22-cv-00082-RA-OTW (S.D.N.Y.) (“District Court Action”), which is presently stayed. Pet. 65; Paper 7, 2.

Although not identified by the parties, we note that the District Court Action also involves the following U.S. Patents against which Petitioner filed the noted requests for *inter partes* review: 8,620,413 (IPR2023-00438); 9,259,615 (IPR2023-00349); 9,278,256 (IPR2023-00189 (Paper 37, Final Written Decision, entered May 13, 2024, determining that claims 1–4, 7, 8, and 11–16 (but not claims 5, 6, 9, 10, and 17–20) of the '256 patent are unpatentable)); 10,232,220 (IPR2023-00180 (Paper 36, Final Written Decision, entered May 13, 2024, determining that all challenged claims (i.e., claims 11–14, 19, and 20) of the '220 patent are unpatentable)); and 10,923,225 (IPR2023-00424).

B. The '930 Patent

The '930 patent is titled “Combinatory Score Having a Fitness Sub-score and an Athleticism Sub-score,” and issued January 29, 2019, from U.S. Patent Application No. 15/675,895, filed August 14, 2017. Ex. 1001, codes (10), (21), (22), (45), (54). The '930 patent claims priority through a series of continuation and divisional applications to U.S. Provisional Application No. 61/655,365, filed June 4, 2012. *Id.* at 1:8–14, codes (60), (63).

The '930 patent relates to “monitoring a user performing an athletic movement and/or exercise and generating a combinatory fitness athleticism score.” Ex. 1001, code (57). According to the '930 patent:

The score may comprise a fitness sub-score and a fitness [sic: an athleticism] sub-score. *The athletic movement may comprise a plurality of drills configured to test a plurality of fitness attributes and/or a plurality of athleticism attributes of the user.* At least one of the plurality of fitness attributes may be selected from the group consisting of: endurance, flexibility, strength and combinations thereof; and at least one of the plurality of athleticism attributes may be selected from the group consisting of: speed, agility, reaction, power, balance, and combinations thereof.

Id. (emphasis added). As used in the '930 patent, “an ‘athletic movement’ includes movements relating to fitness, exercise, flexibility, including movements that may be part of one or more single and multiple participant athletic competitions, exercise routines, and/or combinations thereof.” *Id.* at 4:7–11. Similarly, “[a] drill may include a predetermined number of exercises (e.g., pushups, squats, lunges, etc.) where system 100 prompts the user to perform a number of repetitions of each exercise.” *Id.* at 22:56–59. Further, “[a] plurality of drills may be presented to the user during a single session.” *Id.* at 23:24–25. “Calculation of the combinatory score and/or the sub-scores may be based upon combining a plurality of drill scores.” *Id.* at 24:63–65.

According to the '930 patent, “*example* fitness attributes *may include, but are not limited to:* endurance, flexibility, strength and combinations thereof,” and “*example* athleticism attributes *may include, but are not limited to:* speed, agility, reaction, power, balance, and combinations thereof.” *Id.* at 23:36–41 (emphases added).

C. Illustrative Claim

The '930 patent includes twenty claims, of which Petitioner challenges claims 1, 5–7, and 12. Claim 1 is the only challenged independent claim, and is reproduced below with bracketing added to mirror the parties' usage thereof.

1. [pre] A computer-implemented method comprising:
 - [a] providing first instructions to a user to perform a first athletic movement;
 - [b] receiving, from a sensor, first activity data representing the first athletic movement;
 - [c] calculating with a processor, based on the first activity data, a first combinatory fitness-athleticism score;
 - [d] providing, in response to a triggering event, second instructions to the user to perform a second athletic movement;
 - [e] receiving, from the sensor, second activity data representing the second athletic movement;
 - [f] calculating, with the processor, based on the second activity data, a second combinatory fitness-athleticism score,
 - [g] wherein the first and the second combinatory fitness-athleticism scores each comprise a fitness sub-score and a separate athleticism sub-score of the user,
 - [h] wherein the fitness sub-score is calculated, by the processor, using one or more of an endurance fitness attribute, a flexibility fitness attribute and a strength fitness attribute of the user, and
 - [i] wherein the athleticism sub-score is calculated, by the processor, using one or more of a speed athleticism attribute, an agility athleticism attribute, a reaction athleticism attribute, a power athleticism attribute and a balance athleticism attribute of the user.

Ex. 1001, 26:16–42.

D. Evidence of Record

Petitioner relies on the following patent and published patent application evidence.

Name	Patent Document	Exhibit
Lofi	WO 2006/111687 A1 ¹ , published October 26, 2006	1002
Maeueler	EP 2 324 762 A1, published May 25, 2011	1003
Kitagawa	US 7,810,392 B2, issued October 12, 2010	1004

Pet. 14.

Petitioner also relies upon the Declaration of Dr. Gregory S. Fischer (Ex. 1005).

Patent Owner relies upon two Declarations of Dr. Scott G. McLean (Exs. 2001, 2004).

E. Asserted Challenges to Patentability

We instituted *inter partes* review of claims 1, 5–7, and 12 of the '930 patent on the following grounds asserted by Petitioner. Dec. 2–3, 33; Pet. 15.

¹ Petitioner submitted a certified English translation of WO 2006/111687 A1 in Exhibit 1002 (i.e., this exhibit includes both original and translated versions), and citations herein to Lofi are to the translated version, namely, exhibit pages 28–55.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 5–7	102 ²	Lofi
1, 5–7	103	Lofi, Kitagawa
1, 5–7, 12	103	Maeueler, Kitagawa

III. PATENTABILITY

A. Applicable Law

Petitioner challenges the patentability of claims 1, 5–7, and 12 of the ’930 patent on grounds that various claims are anticipated under 35 U.S.C. § 102 or would have been obvious under 35 U.S.C. § 103 in light of various references, namely Lofi, Maeueler, and Kitagawa. “In an [*inter partes* review], the petitioner has the burden from the onset to show *with particularity* why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)) (emphasis added). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

To serve as an anticipatory reference under 35 U.S.C. § 102, “the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently.” *In re Gleave*,

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–288 (2011), amended 35 U.S.C. §§ 102 and 103 effective on March 16, 2013. Neither party argues that the outcome of this case would differ based on applying the pre-AIA or post-AIA versions of these laws.

560 F.3d 1331, 1334 (Fed. Cir. 2009). “The identical invention must be shown in as complete detail *as is contained in the . . . claim.*” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) (emphasis added). The elements must be arranged as required by the claim, “but this is not an ‘*ipsissimis verbis*’ test,” i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 832–833 (Fed. Cir. 1990) (citing *Akzo N.V. v. U.S. Int’l Trade Comm’n*, 808 F.2d 1471, 1479 & n.11 (Fed. Cir. 1986)).

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when of record, objective evidence of obviousness or non-obviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Secondary considerations may include the following: “commercial success, long felt but unsolved needs, failure of others, etc.”³ *Id.* The totality of the evidence submitted may show that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–1472 (Fed. Cir. 1984). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the

³ Patent Owner does not present objective evidence of non-obviousness.

fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *Id.* at 415. Whether a patent claiming a combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To reach this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art, at the time of the invention of the ’930 patent,

would have had (1) a bachelor’s degree in engineering, computer science, industrial design, biomechanics, or a related field, and

(2) at least two years of experience researching, developing, designing, and/or testing fitness or physiological sensors, wearable devices, physiological or biomechanical devices, remotely-controlled systems or interfaces, and/or network-based applications and/or equipment, or the equivalent experience or education.

Pet. 13 (citing Ex. 1005 ¶ 44).

Patent Owner “does not dispute [Petitioner’s] proposed level of skill in the art” in this case. PO Resp. 16.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art also is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Neither party argues that the outcome of this case would differ based on our adoption of any particular definition of the level of ordinary skill in the art. Considering the subject matter of the ’930 patent, the background technical field, the prior art, and Petitioner’s unopposed definition of the skilled artisan, we apply the level of skill set forth above, which is consistent with the testimony of Dr. Fischer (Ex. 1005 ¶ 44).

C. Claim Construction

We construe claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and

customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips*, 415 F.3d at 1312–1313; *see CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (explaining that there is “a ‘heavy presumption’ that a claim term carries its ordinary and customary meaning”). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–1317). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317.

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

The parties dispute the meanings of three claim limitations, namely, (1) “[first/second] athletic movement”; (2) “[first/second] instructions”; and

(3) “[first/second] activity data,” all as recited in independent claim 1.⁴ PO Resp. 16–22; Pet. Reply 2–10; PO Sur-reply 2–11. The parties otherwise do not contend that claim construction is necessary to resolve the controversy in this case. *See* PO Resp. 16–22; Pet. 14. To the extent necessary to resolve the controversy before us, we address claim interpretation in our patentability analysis below.

D. Anticipation of Claims 1 and 5–7 by Lofi

Petitioner contends claims 1 and 5–7 are unpatentable under 35 U.S.C. § 102 as anticipated by Lofi (Ex. 1002). Pet. 8–10, 15–27; Pet. Reply 2–14. Patent Owner opposes Petitioner’s contentions. PO Resp. 16–30; PO Sur-reply 2–15. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 5–7 are unpatentable as anticipated by Lofi. We turn first to an overview of Lofi.

1. Overview of Lofi (Ex. 1002)

Lofi relates to a device for evaluating a person’s physical fitness, as shown, for example, in Figure 2, reproduced below. Ex. 1002, code (54), Fig. 2.

⁴ In our Institution Decision, we stated “Patent Owner’s arguments here [in connection with limitation 1[c]] appear to depend on a particular construction of ‘first athletic movement’ (and of ‘first instructions’ and ‘first activity data’) that Patent Owner has not yet proffered and supported,” and we “encourage[d] the parties during trial to submit proposed constructions for the subject limitations.” Dec. 20.

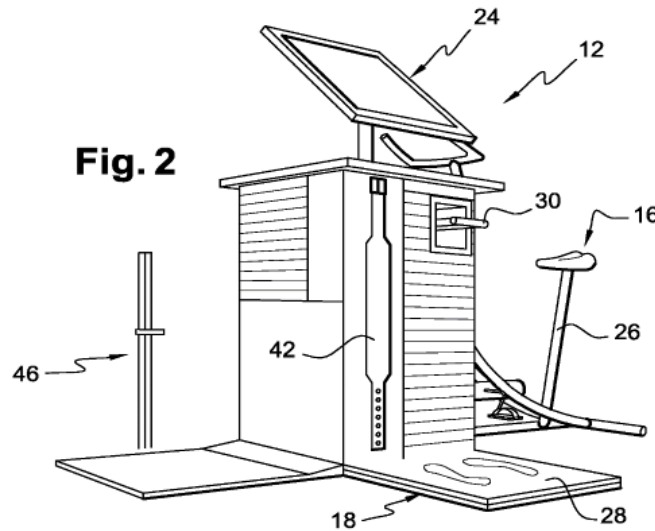


Figure 2 depicts a perspective view of a measurement terminal of physical fitness parameters.

Lofi discloses terminal device 12 for “evaluating the physical fitness of a person comprising an endurance measuring means (16), body composition measuring means (18), muscular strength measuring means (20),” as well as means 22 for measuring flexibility and means 28 for measuring balance. Ex. 1002, code (57), 3:21–26, 8:8–9:17.

Lofi discloses various fitness tests to assess endurance, strength, balance, and flexibility. For example, to test endurance, Lofi discloses “[a] person is asked to pedal [ergometric bicycle 26] for a period of 8 minutes and the workload is increased progressively.” Ex. 1002, 4:4–8. To test strength, “the person is asked to pedal [ergometric bicycle 26] as fast as possible for a short period of approximately 10 seconds” while resistance on the bicycle’s pedals is rapidly increased. *Id.* at 5:9–16. To test balance, an individual is instructed to step onto scale 28, then stand while being supported on both feet with eyes open, followed by standing while being supported on both feet with eyes closed, followed by standing while being

supported on one foot. *Id.* at 8:8–9:17. To test flexibility, an individual is instructed to bring pallet 46 “as low as possible, bending forwards without giving way to their legs.” *Id.* at 7:20–8:7.

For each fitness test, Lofi discloses means for monitoring the individual using one or more sensors. For example, sensors may be worn in abdominal belt 42 (such as pressure sensors 44) or may be located in terminal device 12. Ex. 1002, 6:24–25, 6:4–6 (“force sensor”), 8:8–9 (“statokinesimeter 56”; “pressure sensors 58”). Lofi discloses terminal device 12 receives measurement data from the sensors corresponding to the physical activity for each test. *Id.* at 2:23–25, 3:17–4:2. Terminal device 12 also includes “means of processing” to determine a score for each test by comparing collected measurement data to a distribution curve corresponding to a person’s population group. *Id.* at 2:23–25. Terminal device 12 then presents users with “overall score[s],” corresponding to weighted averages of multiple fitness tests, as well as scores for individual fitness tests. *Id.* at 10:16–25, 11:20–22.

We further discuss below the disclosure of Lofi in connection with the parties’ arguments.

2. Analysis

a. Independent Claim 1

Petitioner provides an element-by-element analysis of independent claim 1 in relation to Lofi. Pet. 8–10, 15–25; Pet. Reply 2–14. Patent Owner opposes. PO Resp. 16–29; PO Sur-reply 2–14. As discussed below, Petitioner contends each limitation in claim 1 is disclosed by Lofi.

(1) *[1[pre]] A computer-implemented method comprising:*

Petitioner contends Lofi meets the preamble of claim 1 by disclosing a method implemented on an apparatus, such as terminal device 12, that “make[s] it possible for a person to evaluate their physical fitness autonomously and reliably.” Pet. 15 (quoting Ex. 1002, 2:10–12).

Petitioner argues “[t]he method relies on a processing means in the apparatus that calculates scores based on data received from sensors.” Pet. 16 (citing Ex. 1002, 11:20 (“The processing means 60 [analyze] the measurements and decide on the scores.”)).

Neither Petitioner nor Patent Owner takes a position as to whether the preamble is limiting, nor does Patent Owner dispute that Lofi discloses such a “computer-implemented method,” generally. *See* Pet. 15–16; *see generally* PO Resp.; PO Sur-reply. Because we find that Petitioner’s cited disclosure from Lofi discloses a “computer-implemented method” with limitations 1[a] through 1[i] (*see infra*), we need not determine whether the preamble is limiting. *See Nidec*, 868 F.3d at 1017.

(2) *[1[a]] providing first instructions to a user to perform a first athletic movement;*

Petitioner contends Lofi discloses limitation 1[a] by describing, *inter alia*, that terminal device 12 provides instructions to users to perform various fitness and athleticism tests, including: an endurance test using a bicycle; a strength test using a bicycle or an abdominal belt; a flexibility test using portable pallet 46; a balance test using scale 28; and a reaction test. Pet. 16 (citing Ex. 1002, 1:13–15, 4:4–8, 5:13–16, 6:24–7:5, 7:16–18, 7:20–24, 8:1–3, 8:8–9:2, Fig. 3). Petitioner contends these tests are performed “in response to instructions from Lofi’s terminal, which includes

a screen/display 24 that allows the tests to be performed ‘autonomously.’” Pet. 18 (citing Ex. 1002, 2:10–12, 9:18–20); *see id.* (“[T]he user being tested ‘is asked’ to perform the procedure for each test.” (citing Ex. 1002, 1:7, 4:7, 5:4, 5:13, 6:18, 7:2–4, 7:14, 8:1, 8:25, 11:13)).

Based on the foregoing evidence and the reasons stated in the Petition at pages 16–18, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[a].⁵ Except as discussed below concerning limitation 1[c], Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

(3) *[1[b]] receiving, from a sensor, first activity data representing the first athletic movement;*

Petitioner contends Lofi discloses limitation 1[b] by describing, *inter alia*, various sensors collecting and transmitting data representing users’ various fitness and athleticism tests, including: “a sensor to measure ‘the person’s heart rate’”; a sensor to measure “‘the speed of pedaling’”; “‘one or more pressure sensors 44’ which can ‘measure the action of abdominal muscles’”; and an encoder sensor used “‘to measure the displacement of portable pallet 46.’” Pet. 18–20 (citing, *inter alia*, Ex. 1002, 1:4–6, 4:7–13, 6:24–7:1, 8:3–4).

Based on the foregoing evidence and the reasons stated in the Petition at pages 18–20, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[b]. Except as discussed below concerning limitation 1[c],

⁵ Like the parties, we discuss our construction of “a first athletic movement” in the context of limitation 1[c] below, which involves the interrelationship of “a first athletic movement,” “first activity data,” and “a first combinatory fitness-athleticism score.”

Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

- (4) *[1[c]] calculating with a processor, based on the first activity data [representing the first athletic movement], a first combinatory fitness-athleticism score;*

In our Institution Decision, we noted that the parties’ arguments concerning limitation 1[c] appeared to depend on particular constructions of “first athletic movement” (and of “first instructions” and “first activity data”) that the parties had not yet proffered and supported, and we encouraged the parties to submit proposed constructions for such terms. Dec. 20. We turn below first to construing these terms and then to whether Lofi discloses limitation 1[c].

- (a) *Claim Construction: “first athletic movement” (and related “first instructions” and “first activity data”)*

To resolve the controversy before us concerning the term “first athletic movement,” we need only to decide whether “first athletic movement” excludes *multiple* (or combinations of) physical exercises, drills, or activities performed in response to *multiple* instructions (or a set of instructions directed to such multiple physical exercises, drills, or activities). We determine that “first athletic movement” does *not* do so, and begin with a review of the parties’ claim construction arguments.

Patent Owner proposes in its Response that “first athletic movement” “refers only to a *single* ‘athletic movement’” (which, of course, does not itself inform the scope of “*athletic movement*”). PO Resp. 16. In particular, Patent Owner argues “[t]he inventors’ use of the both ‘athletic movement’ and ‘athletic movements’ in the [S]pecification demonstrates that they

intentionally used ‘athletic movement’ to refer to only to a *single* athletic movement” (PO Resp. 17–18), and allegedly, the “inventors’ lexicography of ‘athletic movement’ demonstrates that the term ‘athletic movement’ in claim 1 refers only to a *single* athletic movement” (*id.* at 18–21).

Petitioner replies that the intrinsic evidence (as well as the extrinsic evidence) “establishes that ‘athletic movement’ encompasses multiple ‘movements,’” and relies upon many of the same passages in the Specification as Patent Owner. Pet. Reply 3; *see id.* at 2–8.

Patent Owner responds by reiterating its argument that “[t]he term ‘athletic movement’ . . . means a *single* ‘athletic movement,’” but then additionally argues that “a single athletic movement” *is* “a single type of exercise or athletic activity,” such as “running, swimming, cycling, pushups, or squats.” PO Sur-reply 2–3. Patent Owner does this despite the ‘930 patent repeatedly and separately using the terms “athletic movement,” “exercise,” and “activity.” *See, e.g.*, Ex. 1001, 4:7–11 (“‘athletic movement’ *includes* movements *relating to* . . . exercise” (emphases added)), 8:37–38 (“Device 226 may monitor athletic movements of a user, *including all-day activity* of user 124.” (emphasis added)). Patent Owner argues that “[t]hese individual [(i.e., single)] movements may include multiple coordinated bodily movements, like the way a runner coordinates the motions of their arms and legs,” “[b]ut a single ‘athletic movement’ . . . does not include a user performing a series of different discrete ‘athletic movements’ or exercises.” PO Resp. 20–21; PO Sur-reply 3; *see* PO Sur-reply 3–11. We find Patent Owner’s arguments unavailing, and find Petitioner’s proposed construction of the subject limitation persuasive.

Claims: We turn first to the claim language itself. We are mindful of Judge Rich’s guidance from over thirty years ago: in all aspects of claim construction, “the name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (quoting Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 Int’l Rev. Indus. Prop. & Copyright L. 497, 499 (1990)).

Claim 1 recites, in relevant part, “providing first instructions to a user to perform a first athletic movement.” Ex. 1001, 26:17–18. The claim language itself suggests that “a first athletic movement” is simply the physical exercises, drills, or activities the user is instructed to perform via the first instructions. *See* Pet. Reply 4 (Petitioner arguing that the “instructions” recited in claim 1 “define the first and second athletic movements”). So, if the “first instructions” (notably plural) instructed a user to run one mile, then running one mile would be the “first athletic movement”; and likewise, if the “first instructions” instructed a user to perform 10 squats, perform 10 push-ups, and run one mile, then performing the 10 squats, performing 10 push-ups, and running one mile would be the “first athletic movement.” Contrary to Patent Owner’s proposed construction, we find no suggestion in claim 1 that “a first athletic movement” should be limited to a single “athletic movement” or “a single type of exercise or athletic activity.” Indeed, a single “type of exercise” or single “athletic activity” both appear to be proverbial “noses of wax,” as Patent Owner provides no explanation for how the skilled artisan would definitively distinguish one *type* of exercise or athletic activity from another (e.g., “weightlifting” could be considered an athletic activity or a “type” of exercise, yet it comprises countless weighted physical motions and

sequences; similarly, “swimming” could be considered an athletic activity or a “type” of exercise, yet it too comprises many physical forms or techniques invoking many different physical motions and sequences (such as breaststroke, backstroke, butterfly, and sidestroke).

We note that claim 6, which depends directly from independent claim 1, recites: “[W]herein the first instructions and the second instructions *include a plurality of drills* configured to test a *plurality of fitness attributes* of the user and a *plurality of athleticism attributes* of the user.” Ex. 1001, 26:57–60 (emphases added). Although less than artfully worded, we find that dependent claim 6 plainly requires that the first (and second) instructions provided to the user in claim 1 instruct the user on performing “a plurality of drills” (i.e., more than a single drill), which further supports our interpretation of “a first athletic movement.” See Pet. Reply 4. Patent Owner argues, *inter alia*, claim 6 specifies that “the first instructions and second instructions *must be selected from a specific ‘plurality of drills’*—rather than from some other source (e.g., an athletic competition).” PO Sur-reply 5–6 (emphasis added); *see id.* at 6–7 (Patent Owner arguing “claim 6 simply requires the first and second instructions to identify a first and second ‘athletic movement’ that *are selected from a certain catalog of drills*” (emphasis added)). We find Patent Owner’s attempt to contort “includes” to mean “selected from” a certain grouping unavailing, because “including” A, B, and C is simply not the same as “select[ing] [one] from” A, B, and C.

Specification: We next turn to disclosures in the Specification relevant to the subject limitation. *See E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) (Claims must be interpreted “‘in view of the specification’ without unnecessarily importing limitations from the

specification into the claims.” (citing *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203–1204 (Fed. Cir. 2002))).

The Specification explicitly defines an “athletic *movement*” (singular) to “*include[] movements* [plural] relating to fitness, exercise, flexibility, including *movements* that may be part of one or more single and multiple participant athletic competitions, exercise routines, and/or combinations thereof” (Ex. 1001, 4:7–11 (emphases added)), and explains that “[t]he athletic movement may comprise a plurality of drills configured to test a plurality of fitness attributes and/or a plurality of athleticism attributes of the user” (*id.* at code (57) (emphases added)). The Specification explains that “[a] combinatory score, a component sub-score, or values utilized in determining a score and/or sub-score . . . may be calculated or derived from the user’s performance during . . . physical *movements* with predefined criteria, such as predefined *drills or tests* [both plural].” Ex. 1001, 22:43–48 (emphases added). The Specification also explains that “system 100 may prompt user 124 to perform *one or more exercises that are part of a drill*,” where “[a] drill may include a *predetermined number of exercises* (e.g., pushups, squats, lunges, etc.) where system 100 *prompts* the user to perform a number of repetitions *of each exercise*.” *Id.* at 22:54–59 (emphases added). In addition, the Specification states, “[c]alculation of the combinatory score and/or the sub-scores may be based upon *combining a plurality of drill scores*.” *Id.* at 24:63–65 (emphasis added).

Patent Owner argues the Specification’s explicit definition of “athletic movement” (i.e., “an ‘athletic movement’ *includes* movements . . .”) (Ex. 1001, 4:7–11)), discussed above, means that “an ‘athletic movement’ is one selected from a specific class of movements, i.e., ‘movements relating to

fitness, exercise, flexibility.” PO Resp. 18–21 (emphases added). Again, Patent Owner asks us to contort “includes” to mean “one selected from” a certain grouping. We decline to do so, as these two terms are plainly different in meaning and scope, and doing so would contravene well-known patent drafting principles. *See, e.g.*, MPEP⁶ 2111.03(I) (“The transitional term ‘comprising’, which is synonymous with ‘including,’ ‘containing,’ or ‘characterized by,’ is *inclusive or open-ended* and does not exclude additional, unrecited elements or method steps.”), 2111.03(II) (“A claim element defined by *selection from a group of alternatives* (a Markush grouping . . .) *requires selection from a closed group* ‘consisting of’ (rather than ‘comprising’ or ‘including’) the alternative members.” (emphases added)), 2117(I); Ex. 1005 ¶ 106 (Petitioner’s expert testifying, “[i]t should be noted that there is nothing in the ’930 patent limiting the athletic activity or athletic movement to a single drill or test.”); *see also* Pet. Reply 2–3.

Patent Owner argues that we should ignore, give little weight to, or contort the plain meaning of the express statement in the Specification’s abstract that supports our construction of the subject limitation: “The athletic movement may comprise a plurality of drills configured to test *a plurality* of fitness attributes *and/or a plurality* of athleticism attributes of the user” (Ex. 1001, code (57) (emphases added)). *See* PO Resp. 19–21. Patent Owner argues, *inter alia*, “this sentence does no more than describe a class of movements that fall within the scope of an ‘athletic movement,’” and “[a]t most, [the skilled artisan] would understand this sentence to mean that

⁶ MANUAL OF PATENT EXAMINING PROCEDURE (“MPEP”) (9th ed. rev. 07.2022, Feb. 2023).

an athletic movement may be selected from a class of drills that are configured to test a plurality of fitness attributes and/or a plurality of athleticism attributes of the user.” *Id.* at 20 (citing Ex. 2004 ¶ 39) (emphasis added). We disagree—this argument again contravenes the well-known meaning and use of the term “comprising” (like “including”) as discussed above. *See* Pet. Reply 6 n.3 (Petitioner arguing that Patent Owner’s argument here is “wrong,” and that the subject disclosure “describes ‘athletic movement’ encompassing multiple movements”).

Patent Owner argues “this [‘comprise[s]’] sentence in the abstract” should not outweigh other aspects of the Specification that Patent Owner alleges support its position, and argues “[t]he abstract shall not be used for interpreting the scope of the claims,” citing “37 C.F.R. § 1.72(b) (2002).” PO Resp. 19–20. Although the Specification uses both “athletic movement” and “athletic movements” (*see* PO Resp. 17–18; PO Sur-reply 7–8), Petitioner argues and we agree that the additional disclosures surrounding the recitation of those terms throughout the Specification do not support Patent Owner’s premise,⁷ and more importantly, that the explicit disclosures in the Specification discussed above substantially favor our construction of the subject limitation. *See* Pet. Reply 4–6. Further, in this proceeding, Patent Owner’s legal argument that the abstract “shall not be used” to

⁷ For example, Petitioner submits that “the passage at 12:55–57 [of the Specification cited at PO Resp. 17] confirms that ‘movement’ encompasses multiple movements: it refers to ‘athletic movement’ in the topic sentence of a paragraph and then to a user ‘perform[ing] *one or more* exercises during a workout session’ in that paragraph’s body.” Pet. Reply 5 (citing Ex. 1001, 12:55–67; Ex. 1017, 38:2–39:11 (deposition testimony of Patent Owner’s expert, Dr. McLean)).

construe “first athletic movement” is both surprising and wrong—that rule was eliminated from Rule 1.72(b) *over 20 years ago*.⁸ See Pet. Reply 6–7 (citing Changes to Implement Electronic Maintenance of Official Patent Application Records, 68 Fed. Reg. 38,611, 38,614 (June 30, 2003)⁹). In sum, we find Patent Owner’s arguments concerning the “comprise[s]” statement in the abstract and its expert’s mirroring testimony not credible.

Based on the foregoing, and contrary to Patent Owner’s arguments and proposed construction, we find that the Specification, read as a whole,

⁸ We remind Patent Owner’s counsel of their duty of candor and good faith to the Office during the course of a proceeding pursuant to 37 C.F.R. § 42.11. In its Sur-reply, Patent Owner doubles-down on its “abstract” argument: “[T]he Patent Office’s amendment of its regulation is irrelevant—courts continue to recognize the limited value of an abstract in claim construction.” PO Sur-reply 8–10. It is not “irrelevant” that Patent Owner cited to the Board a rule that was *removed* over 20 years ago to *eliminate the prohibition on using the abstract to interpret the claims* (*see infra* n.9), without itself providing this context to the Board, and it is likewise not “irrelevant” that Patent Owner cites only to some district court decisions involving use of the abstract, but downplays the Federal Circuit’s explicit direction that it “frequently” looks to the abstract to determine the scope of claim limitations” (*see infra* n.9). See PO Sur-reply 8–10. Despite this, Patent Owner alleges that *Petitioner* “mischaracterizes the law concerning the importance of the abstract in claim construction disputes.” PO Sur-reply 8. We find no merit in Patent Owner’s arguments here.

⁹ The USPTO explained that this aspect of Rule 1.72(b) “has been removed to eliminate the prohibition on using the abstract to interpret the claims to conform the rule to be consistent with Federal Circuit case law.” 38 Fed. Reg. at 38,614 (citing *Hill-Rom Co. v. Kinetic Concepts, Inc.*, 209 F.3d 1337, 1341 n.* (Fed. Cir. 2000)). In the cited *Hill-Rom* decision, the court stated, “[w]e have frequently looked to the abstract to determine the scope of the invention, . . . and we are aware of no legal principle that would require us to disregard that potentially helpful source of intrinsic evidence as to the meaning of claims.” 209 F.3d at 1341 n.*.

does not exclude *multiple* (or combinations of) physical exercises, drills, or activities performed in response to *multiple* instructions (or a set of instructions directed to such multiple physical exercises, drills, or activities) from the meaning and scope of “first athletic movement.”

Prosecution History: Neither party has directed us to any evidence in the prosecution history of the ’930 patent relevant to interpreting the subject limitation. *See generally* Exs. 1006–1010 (excerpted prosecution file history of the ’930 patent).

Based on the record before us, we determine that “first athletic movement” does not exclude multiple (or combinations of) physical exercises, drills, or activities performed in response to multiple instructions (or a set of instructions directed to such multiple physical exercises, drills, or activities).

Both parties argue that the terms “first instructions” and “first activity data” should have their ordinary and customary meanings or otherwise do not require construction to resolve the controversy between the parties. PO Resp. 21–22; Pet. Reply 8–10. We agree.

(b) Lofi’s Disclosures

Petitioner contends Lofi discloses limitation 1[c] by describing, *inter alia*, means for processing 60 using data to calculate a combinatory fitness-athleticism score. *See* Pet. 20–22. Specifically, Petitioner argues, in full:

Lofi further teaches a terminal as a means for processing the measurements associated with a fitness test (e.g., endurance, strength, balance, reaction time, and flexibility) and returning the result to the user. ([Ex. 1002,] 3:17–20.) Lofi’s terminal thus represents a processor. *The terminal enables collection of “different measurements” corresponding to an individual’s performance on each test (e.g., activity data) “to facilitate the*

evaluation of their physical fitness, autonomously and with reliability.” (Id. at 9:18–20.) The terminal also contains “for each measurement a distribution curve for different populations characterized, each at least with regard to an age range, height range and gender of persons (a curve for each different population).” (*Id. at 9:21–24.*) [Image omitted.]

In order to calculate a score for each fitness test, “the means of processing determine[s] a score comparing the measured value with the distribution curve corresponding to the person’s population group.” (*Id. at 10:7–15.*) Lofi further teaches that the means of processing allocates an aggregate combined score to the person. *This aggregate score corresponding to an individual’s overall physical fitness may be equivalent to the weighted average of each fitness test score “with a coefficient 1 for the measurement of body composition, a coefficient 1 for measurement of endurance, a coefficient 1 for measurement of the muscular strength” (Id. at 10:16–19.)* According to Lofi, “the processing means 60 analyse[s] the measurements and decide[s] on the scores.” (*Id. at 11:20.*) *The user is then presented with a display of “the overall score of physical fitness together with scores for each measure.” (Id. at 11:20–22.)*

Pet. 20–22 (emphases added).

We note that in connection with limitation 1[d], discussed below, Petitioner reviewed generally how Lofi discloses limitations 1[a]–1[c]:

Lofi discloses providing instructions to a user to perform *an athletic movement corresponding to several tests*. Lofi teaches a collection of tests related to endurance, muscular strength, balance, reaction time, flexibility, and body composition. Lofi further teaches that these tests are administered as part of a series in a single workout session.

Pet. 22 (citations omitted) (emphasis added).

Patent Owner contends “the claimed ‘activity data’ is derived from a single ‘athletic movement,’ where an athletic movement is *a single type of*

exercise or activity,” and under such constructions, Petitioner “fails to show that Lofi discloses calculating a combinatory score based on ‘athletic data’ representing an ‘athletic movement.’” PO Resp. 23 (emphasis added); *see id.* at 24–25 (“[T]he ‘first activity data’ recited in claim 1 must (i) derive from a *single* ‘athletic movement’ performed in response to the ‘first instructions,’ and (ii) include separate measurements of both fitness and athleticism.”), 25–26 (“[Petitioner] also fails to meet its burden on this claim limitation because the ‘first activity data’ identified by [Petitioner] is not derived from a single ‘athletic movement’ performed in response to ‘first instructions.’”). But we do not agree with and do not adopt Patent Owner’s construction of “first athletic movement” as discussed above, and thus, find Patent Owner’s arguments unavailing. Indeed, under our construction of “first athletic movement” and of related “first instructions” and “first activity data,” Patent Owner effectively concedes that Lofi discloses limitation 1[c]: “Lofi merely describes a conventional method using data obtained from a series of different exercises performed by a user to generate a combinatory score.” PO Resp. 23; *see id.* at 2 (same).

Based on the foregoing evidence and the reasons stated in the Petition at pages 20–22, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[c].

(5) *[1[d]] providing, in response to a triggering event, second instructions to the user to perform a second athletic movement;*

Initially, we note that we construe “second instructions,” “second athletic movement,” and “second athletic data” the same as the “first” versions of these terms for the same reasons given above in Section III.D.2.a.4.a.

Petitioner contends Lofi discloses limitation 1[d] by describing, *inter alia*, (1) “[a] user can repeat the tests [discussed above concerning limitations 1[a]–1[c]] to ‘revise their [] results’”; and (2) “a user can revise the result (i.e., score) of a previous test by entering a username and password at a terminal and repeating the test.” Pet. 22–23 (citing, *inter alia*, Ex. 1002, 12:1–7). Petitioner contends “[t]he user entering a username and password is the triggering event,” and in response to this “triggering event,” “second instructions” are provided to the user to perform a “second athletic movement.” Pet. 23.

Based on the foregoing evidence and the reasons stated in the Petition at pages 22–23, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[d]. Except as discussed above concerning limitation 1[c], Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

(6) *[1[e]] receiving, from the sensor, second activity data representing the second athletic movement;*

Petitioner contends Lofi discloses limitation 1[e] because, “[w]hen a user repeats the tests to ‘revise their [] results,’ second activity data representing the second athletic movements will be received by the processing unit” for the same reasons discussed above regarding limitations 1[a] and 1[b]. Pet. 23; *see supra* §§ III.D.2.a.2–3.

Based on the foregoing evidence and the reasons stated in the Petition at page 23, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[e]. Except as discussed above concerning limitation 1[c], Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

(7) *[1[f]] calculating, with the processor, based on the second activity data, a second combinatory fitness-athleticism score,*

Petitioner contends Lofi discloses limitation 1[f] because, “[w]hen a user repeats the tests to ‘revise their [] results,’ a new combinatory fitness-athleticism score is calculated based on the second activity data received as part of the new test,” and therefore, Lofi discloses limitation 1[f] for the same reasons discussed above regarding limitation 1[c] and 1[d]. Pet. 24; *see supra* §§ III.D.2.a.4–5.

Patent Owner disputes Petitioner’s evidentiary showing here for the same reasons as for limitations 1[c] and 1[d], which we find unavailing as discussed above. PO Resp. 27–29; *see supra* §§ III.D.2.a.4–5.

Based on the foregoing evidence and the reasons stated in the Petition at page 24, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[f].

(8) *[1[g]] wherein the first and the second combinatory fitness-athleticism scores each comprise a fitness sub-score and a separate athleticism sub-score of the user,*

Petitioner contends Lofi discloses limitation 1[g] because, in Lofi, the “combinatory fitness-athleticism scores” discussed above concerning limitations 1[c] and 1[f] are calculated in the same manner, namely, “[t]he combinatory scores are the result of a user completing an endurance, strength, flexibility, balance and reaction time tests,” and “[a]n aggregate score is presented to the user as well as individual scores for each test.” Pet. 24 (citing Ex. 1002, 11:20–24); *see supra* §§ III.D.2.a.2, 4, 5, 7. Petitioner argues “[t]he scores for Lofi’s strength, flexibility, and endurance tests each correspond to the claim’s fitness sub-score while Lofi’s scores for

its balance and reaction time tests corresponds to the claim's athleticism sub-score." Pet. 24.

Based on the foregoing evidence and the reasons stated in the Petition at page 24, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[g]. Except as discussed above concerning limitation 1[c], Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

(9) *[1[h]] wherein the fitness sub-score is calculated, by the processor, using one or more of an endurance fitness attribute, a flexibility fitness attribute and a strength fitness attribute of the user, and*

Petitioner contends Lofi discloses limitation 1[h] by describing, *inter alia*, "individual fitness tests each resulting in corresponding scores for endurance, flexibility, and strength." Pet. 25; *see supra* §§ III.D.2.a.2, 8.

Based on the foregoing evidence and the reasons stated in the Petition at page 25, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[h]. Except as discussed above concerning limitation 1[c], Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

(10) [1[i]] wherein the athleticism sub-score is calculated, by the processor, using one or more of a speed athleticism attribute, an agility athleticism attribute, a reaction athleticism attribute, a power athleticism attribute and a balance athleticism attribute of the user.

Petitioner contends Lofi discloses limitation 1[i] by describing, *inter alia*, “individual fitness tests each resulting in corresponding scores for balance and reaction.” Pet. 25; *see supra* §§ III.D.2.a.2, 8.

Based on the foregoing evidence and the reasons stated in the Petition at page 25, we find Petitioner sufficiently establishes that Lofi discloses limitation 1[i]. Except as discussed above concerning limitation 1[c], Patent Owner does not contest that this limitation is present in Lofi. *See generally* PO Resp.

(11) Conclusion for Independent Claim 1

For the foregoing reasons, and the reasons stated in the Petition (Pet. 8–10, 15–25), we conclude that Petitioner has demonstrated by a preponderance of the evidence that independent claim 1 is unpatentable as anticipated by Lofi.

b. Dependent Claims 5 and 6

Petitioner contends claims 5 and 6, which depend directly from independent claim 1, are unpatentable as anticipated by Lofi. Pet. 25–26. The Petition provides a detailed assessment of these claims, with references to the Petition’s analysis of claim 1 and disclosures in Lofi. *Id.* Patent Owner does not present any separate arguments that are distinct to either of these claims. Rather, Patent Owner generally states the view that the alleged deficiencies in the Petition with respect to claim 1 also are applicable to

claims 5 and 6. *See generally* PO Resp.; PO Sur-reply; Pet. Reply 13.

As discussed above, we are persuaded that the cited evidence sufficiently supports Petitioner’s contention that independent claim 1 is unpatentable as anticipated by Lofi. For the same reasons provided above for independent claim 1, and the reasons set forth in the Petition (Pet. 25–26), we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 5 and 6 are unpatentable as anticipated by Lofi.

c. Dependent Claim 7

Petitioner contends claim 7, which depends directly from independent claim 1, is unpatentable as anticipated by Lofi. Pet. 26–27; Pet. Reply 13–14. Patent Owner opposes. PO Resp. 29–30; PO Sur-reply 14–15.

Dependent claim 7 recites, “wherein the first instructions and the second instructions include a predefined ordering of drills that are configured to be provided to the user during a single workout session.” Ex. 1001, 26:61–64.

Petitioner contends Lofi discloses the limitations of claim 7 by describing, *inter alia*: (1) that terminal device 12 provides instructions to users to perform various fitness and athleticism tests; (2) “a series of tests in a single workout session wherein the ‘following tests are carried out: measurement of reflexes, measurement of the strength of upper limbs, measurement of abdominal strength, measurement of flexibility, measurement of strengths of lower limbs and measurement of endurance’ wherein each stage has a ‘duration of approximately 15 minutes’”; and (3) “various repetitive exercises (*e.g.*, running, bicycling, repetitive movements by contraction of the abdominal muscles) corresponding to each

of these tests.” Pet. 26–27 (citing Ex. 1002, 1:7–10, 11:15–19). Petitioner argues Lofi discloses that “each fitness test represents a drill, and the order of the tests is determined prior to commencing the workout session.” Pet. 27.

Patent Owner argues “Lofi is silent as to any particular ordering of the tests within its series of tests,” and thus Petitioner’s anticipation argument allegedly fails. PO Resp. 30; PO Sur-Reply 14–15. Petitioner responds, as in the Petition, that Lofi discloses a predefined ordering of drills by describing that, subsequent to a user entering personal physical data into terminal device 12, “the following tests are carried out [by terminal device 12]: measurement of reflexes, measurement of the strength of upper limbs, [measurement of abdominal strength, measurement of flexibility, measurement of strengths of lower limbs and measurement of endurance].” Pet. Reply 13–14 (citing, *inter alia*, Ex. 1002, 11:15–16; Ex. 1005 ¶¶ 69 (“The above-described tests of Lofi would be completed in a sequential manner in a single workout session.”; “The completion of each 15-minute fitness test in this series serves as a triggering event upon which instructions are provided to the user to perform an athletic movement associated with the next test.”), 78); *see* Ex. 1005 ¶ 70 (“Being an autonomous system, clearly the terminal of Lofi would provide the instructions for the first activity, and then provide the instructions for the next activity in the sequence, and continue to do so until all of the required activities are completed.”); Ex. 1002, 11:9–23. Patent Owner replies that “this passage [in Lofi at 11:15–19] merely states that those tests are carried out, not the particular order with which they are administered.” PO Sur-reply 14. We find Patent

Owner's arguments unavailing and not commensurate with the broad scope of claim 7.

Contrary to Patent Owner's arguments, claim 7 does not require a "particular" order of drills, merely a "predefined ordering" of drills, which includes any order of drills defined by the instructions as provided to users (i.e., predefined ordering of drills from the viewpoint of users). As discussed above, Lofi discloses terminal device 12 instructing users to perform specific fitness tests or drills one after the other, or in other words, in a sequence or in an order—an order defined by terminal device 12 for provision to users, i.e., a predefined ordering of drills. *See* Ex. 1002, 11:9–23; Ex. 1005 ¶¶ 69, 70, 78.

Based on the foregoing and the reasons provided above for independent claim 1, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 7 is unpatentable as anticipated by Lofi.

3. Conclusion

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 5–7 are unpatentable as anticipated by Lofi.

E. Obviousness of Claims 1 and 5–7 over the Combination of Lofi and Kitagawa

Petitioner alternatively contends claims 1 and 5–7 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Lofi (Ex. 1002) and Kitagawa (Ex. 1004). Pet. 8–10, 12–13, 27–46; Pet. Reply 14–18. Patent Owner opposes Petitioner's contentions. PO Resp. 30–37; PO Sur-reply 16–19. For the reasons expressed below, and based on the

complete record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 5–7 would have been unpatentable as obvious over the combination of Lofi and Kitagawa. We turn first to an overview of Kitagawa.

1. Overview of Kitagawa (Ex. 1004)

Kitagawa relates to a “system for measuring a person’s age on the basis of his/her physical strength.” Ex. 1004, code (57). Kitagawa discloses that a user’s age may be calculated based on the amount of time the user takes to complete multiple exercise courses each comprising various kinds of exercises. *Id.* “The exercise courses are formed so that the user demonstrates various physical abilities, including muscle strength at multiple portions of his/her body, flexibility of the body, balance of the body, and agility of the body.” *Id.*

Kitagawa’s system uses a predefined “index of the amount of exercise that a user performs,” where each exercise course has its own predefined index values, as shown in Kitagawa’s Table 3, reproduced below. Ex. 1004, 3:54–67, 11:11–23 (Table 3).

TABLE 3

Course	Legs	Arms	Flexi- bility	Balance	Agility	Intelli- gence
Log Range	6	4	9	10	4	6
Climb of Grief	7	6	6	6	8	6
Divided Pathway	7	2	9	9	9	2
Road of Torsion	7	3	6	10	5	3
Wall of Stagnation	4	8	7	7	4	4
Cave of Bones	4	5	10	7	4	4
Stretch with Hanging Rings	4	6	10	3	5	2

Table 3 depicts predefined index values for various of Kitagawa’s exercise courses.

Kitagawa's Figure 18, reproduced below, depicts an exemplary exercise course. Ex. 1004, 13:3–15.

Fig. 18

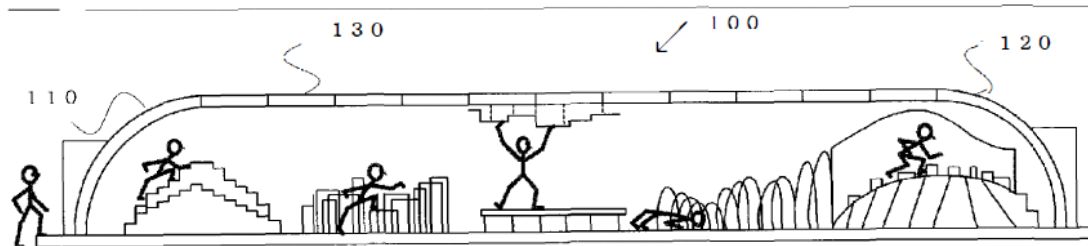


Figure 18 depicts a longitudinal sectional view showing the arrangement of exercise facilities where exercising courses are accommodated in a long dome.

Ex. 1004, 6:37–40, Fig. 18.

We further discuss below the disclosure of Kitagawa in connection with the parties' arguments.

2. *Independent Claim 1*

Petitioner contends independent claim 1 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Lofi and Kitagawa. Pet. 8–10, 12–13, 27–43; Pet. Reply 14–18. The parties dispute whether this combination teaches or suggests (i) limitation 1[c], namely, “calculating with a processor, based on the first activity data [representing the first athletic movement], a first combinatory fitness-athleticism score”; and (ii) limitation 1[f], namely, “calculating, with the processor, based on the second activity data, a second combinatory fitness-athleticism score.” Patent Owner does not contend that the remaining limitations in claim 1 are absent in the combination of Lofi and Kitagawa, except as implicated by these disputed limitations, and therefore, has waived such arguments. *See In re Nuvasive, Inc.*, 842 F.3d 1376, 1379–1382 (Fed.

Cir. 2016) (holding that patent owner waived arguments on an issue that were not raised in its response after institution); *see also Papst Licensing GmbH & Co. KG v. Samsung Elecs. Am., Inc.*, 924 F.3d 1243, 1250 (Fed. Cir. 2019) (holding patent owner forfeited argument for patentability not presented to the Board); *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1048 (Fed. Cir. 2019) (explaining that arguments not presented to the Board are waived). We address below limitations 1[c] and 1[f] in turn and then we turn to the sufficiency of Petitioner’s uncontested allegations.

a. Disputed Limitation 1[c]

Petitioner contends Lofi teaches or suggests limitation 1[c] by describing, *inter alia*, means for processing 60 using data to calculate a combinatory fitness-athleticism score. *See* Pet. 31–33; *supra* § III.D.2.a.4.

Patent Owner contends Lofi does not teach limitation 1[c] using substantially the same arguments it proffered against anticipation by Lofi, namely, that Lofi does not disclose a method of calculating *both* a fitness sub-score *and* an athleticism sub-score (and as a result, a “combinatory fitness-athleticism score”) based on a *single* “athletic movement” and a *single* set of “instructions.” *See* PO Resp. 30–33; PO Sur-reply 16; *supra* § III.D (discussing alleged anticipation by Lofi). Based on the complete record before us, we find Patent Owner’s arguments unavailing for the same reasons given above concerning anticipation by Lofi in Section III.D.

Petitioner alternatively contends that the combination of Lofi and Kitagawa teaches or suggests limitation 1[c]. Pet. 33–36. In particular, Petitioner argues the skilled artisan would have “look[ed] to Kitagawa to incorporate simultaneous monitoring of multiple physical abilities (*e.g.*, flexibility, balance, agility) into Lofi’s fitness tests,” because

“[i]ncorporating the simultaneous monitoring of Kitagawa into Lofi’s fitness tests would yield the predictable result of generating combinatory scores for every fitness test, allowing a user to more comprehensively understand various aspects of their state of fitness.” Pet. 35–36 (citing Ex. 1005 ¶ 128).

Patent Owner argues “Kitagawa does not monitor any physical or physiological parameters of the user while the user is performing an exercise course.” PO Resp. 33 (citing Ex. 2004 ¶¶ 69–71) (emphasis omitted).

Patent Owner also argues “Kitagawa does not use ‘activity data,’ i.e., data, received from a sensor, that represents the first athletic movement, to calculate any assessment score.” *Id.*; see PO Sur-reply 17–18.

Petitioner responds that Patent Owner misunderstands its application of the combined teachings of Lofi and Kitagawa and improperly argues against the references individually:

[Petitioner’s] Petition relies on Lofi—not Kitagawa—for its disclosures of “activity data” and its disclosures of using sensed data in its calculations of scores/sub-scores. (Petition, 30–33, 37–40.) *[Petitioner] relies on Kitagawa for its teachings of exercise courses, each designed to assess both fitness and athleticism attributes* (Petition, 33–36, 40–41; Ex. 1005, ¶¶ 123–124; Ex. 2005, 112:7–113:7; Ex. 1017, 65:2–15), and for its disclosures of [the skilled artisan’s] knowledge (fitness devices equipped with sensors). (Ex. 1005, ¶ 125; Ex. 2005, 109:24–110:10; Ex. 1017, 19:9–15.) As the Petition explains, it would have been obvious to combine Kitagawa’s multiple combinatory scores specific to each exercise course together with known fitness devices equipped with sensors, such as Lofi’s sensors or Kitagawa’s pulse meter. (Petition, 34–36; Ex. 1005, ¶¶ 126–128.)

Pet. Reply 15–16 (emphasis added). We agree with Petitioner and find Patent Owner’s arguments unavailing.

Specifically, we find persuasive Petitioner’s argument that the combination of (1) Lofi’s disclosure of using activity data to calculate fitness scores and athleticism scores, and (2) Kitagawa’s disclosure of using exercise courses, each designed to assess *both* fitness and athleticism attributes, to determine a user’s age, teaches or at least fairly suggests using activity data (representing an athletic movement) to calculate “a first combinatory fitness-athleticism score,” as recited in limitation 1[c]. The test for obviousness is not whether the claimed invention is expressly suggested in any one or all of the references, as argued by Patent Owner (PO Resp. 33; PO Sur-reply 17–18), but whether the claimed subject matter would have been obvious to those of ordinary skill in the art *in light of the combined teachings of those references*. See *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *In re Burckel*, 592 F.2d 1175, 1179 (CCPA 1979) (“[A] reference must be considered not only for what it expressly teaches, but also for what it fairly suggests.”).

Based on the foregoing evidence and the reasons stated in the Petition at pages 31–36, we find Petitioner sufficiently establishes that the combination of Lofi and Kitagawa teaches or suggests limitation 1[c].

b. Disputed Limitation 1[f]

Petitioner also contends that the combination of Lofi and Kitagawa teaches or suggests limitation 1[f]. Pet. 40–41. Petitioner argues “Kitagawa discloses multiple combinatory scores specific to each exercise course, reciting that ‘the combination of the values of the indexes for each exercise course is different from the combination of values in each of the other exercise courses’” Pet. 40–41 (citing Ex. 1004, 2:33–36). According to Petitioner:

In order to more comprehensively understand which physical attributes need improvement, it would have been obvious to [the skilled artisan] to incorporate Kitagawa’s simultaneous monitoring of multiple physical abilities (*e.g.*, flexibility, balance, agility) into Lofi ([Ex. 1005] ¶ 128.) Lofi already contemplates an individual being monitored by one or more sensors during a fitness test. (Ex. 1002 at 8:8–10; Ex. 1005, ¶ 128.) Incorporating the simultaneous monitoring of Kitagawa into Lofi’s fitness tests would yield the predictable result of generating combinatory scores for every fitness test. (Ex. 1005, ¶ 128.)

Pet. 41. We understand Petitioner to argue that Kitagawa’s disclosure of using multiple exercise courses, each designed to assess *both* fitness and athleticism attributes, to determine a user’s age, teaches or at least fairly suggests multiple “combinatory fitness-athleticism scores,” including the “first” and “second” combinatory scores recited in claim 1.

Patent Owner opposes based on substantially the same arguments proffered against limitation 1[c] and the “first combinatory fitness-athleticism score” (PO Resp. 35–36), which we found unavailing and rejected. *See supra* §§ III.E.2.a, III.D.2.a.4; Pet. Reply 16 (“For element [1F], [Patent Owner] just repeats its arguments from Ground 1 and element [1C] of Ground 2.”).

Based on the foregoing evidence and the reasons stated in the Petition at pages 39–41, we find Petitioner sufficiently establishes that the combination of Lofi and Kitagawa teaches or suggests limitation 1[f].

c. Reason to Combine Lofi and Kitagawa

The parties dispute whether a rational reason exists to combine the teachings of Lofi and Kitagawa. *See, e.g.*, Pet. 33–34; PO Resp. 36–37; Pet. Reply 17; PO Sur-reply 18–19.

Petitioner turns to Kitagawa for teaching, *inter alia*, “a variety of exercise courses designed to assess various physical abilities, such as muscle strength in multiple parts of the body, flexibility, balance, and agility”; “each exercise course is designed such that ‘a user utilizes a variety of physical abilities . . .’”; and “‘the extent to which a user utilizes each of his/her various physical abilities is used as an index of the amount of the exercise performed. . . .’” Pet. 33–34 (citing Ex. 1004, 2:28–31, 2:25–29, 2:31–33). Petitioner argues it would have been obvious to the skilled artisan, particularly given the state of the art (*see* Pet. 35 (citing Ex. 1005 ¶¶ 25–35, 125–126)), “to look to Kitagawa to incorporate simultaneous monitoring of *multiple physical abilities (e.g., flexibility, balance, agility)* into Lofi’s fitness tests,” because doing so “would yield the predictable result of generating combinatory scores for every fitness test, *allowing a user to more comprehensively understand various aspects of their state of fitness.*” Pet. 35–36 (citing Ex. 1005 ¶ 128) (emphases added); *see* Pet. 40–41 (“Lofi already contemplates an individual being monitored by one or more sensors during a fitness test.”), 42–46, 27 (“[I]ncorporating Kitagawa’s teachings into that of Lofi is simply the combination of familiar elements according to known methods to yield predictable results.” (citing Ex. 1005 ¶ 122)).¹⁰

¹⁰ Petitioner also turns to Kitagawa’s teaching of a “pulse meter as a means of a personal monitoring sensor,” which Petitioner argues is used to produce data that is subsequently analyzed to produce combinatory scores for users of Kitagawa’s exercise courses. Pet. 34–35 (citing Ex. 1004, 8:43–61, 2:33–36, Table 3; Ex. 1005 ¶ 123). Because Lofi itself explicitly discloses multiple sensors for receiving various activity data, we do not rely on Kitagawa’s pulse meter teachings in addressing this obviousness ground.

Patent Owner argues that the skilled artisan “would never have looked to Kitagawa to cure Lofi’s failure to calculate combinatory scores based on data measured from a single ‘athletic movement.’” PO Resp. 36–37 (citing Ex. 2004 ¶ 76). According to Patent Owner, Kitagawa describes “a user must check in at a service counter to have biometric measurements taken, and take a scorecard to record their own time as they move through the exercise courses, and then return to the counter to have their age score calculated.” *Id.* (citing Ex. 1004, 8:30–42). Patent Owner argues that “Kitagawa does not use any physiological user data in the calculation of the age score,” and “only compares a user’s completion time against a predefined index to arrive at a score.” *Id.* Patent Owner argues, “[t]hus, there would have been no reason for [the skilled artisan] looking to use sensed data to calculate fitness and athleticism scores, to turn to Kitagawa.” *Id.* (citing Ex. 2004 ¶ 77); *see* PO Sur-reply 18–19 (“Kitagawa does not ‘monitor’ any physical or physiological parameters of the user while the user is completing an exercise course.” (citing Ex. 2004 ¶¶ 69–71)). We find Patent Owner’s arguments unavailing.

Patent Owner does not explain why, in a method combining *the teachings* of Lofi and Kitagawa as proposed by Petitioner (*see* Pet. 27–46), Kitagawa’s teachings of evaluating multiple physical abilities (e.g., flexibility, balance, agility) would not have been implemented by the skilled artisan using Lofi’s system with multiple sensors to “allow[] a user to more comprehensively understand various aspects of their state of fitness,” as proffered by Petitioner (Pet. 35–36). Regardless, we find persuasive Petitioner’s argument that:

(1) “Lofi already contemplates an individual being monitored by one or more sensors during a fitness test” and calculating fitness and athleticism scores using data from such sensors (Pet. 41 (citing Ex. 1002, 8:8–10; Ex. 1005 ¶ 128), 31–33 (discussing calculating scores));

(2) Kitagawa teaches, *inter alia*, (a) “a variety of exercise courses designed to assess various physical abilities, such as muscle strength in multiple parts of the body, flexibility, balance, and agility”; (b) “each exercise course is designed such that ‘a user utilizes a variety of physical abilities . . .’”; and (c) “‘the extent to which a user utilizes each of his/her various physical abilities is used as an index of the amount of the exercise performed’” (Pet. 33–34 (citing Ex. 1004, 2:28–31, 2:25–29, 2:31–33));

(3) these Lofi and Kitagawa disclosures combine to teach or at least fairly suggest using Lofi’s system and sensors to receive athletic data representing such muscle strength, flexibility, balance, and agility of a user during an exercise (such as Kitagawa’s courses); and

(4) the skilled artisan would have combined such teachings because doing so “would [have] yield[ed] the predictable result of generating combinatory scores for every fitness test, *allowing a user to more comprehensively understand various aspects of their state of fitness*” (Pet. 35–36 (citing Ex. 1005 ¶ 128) (emphasis added); *see* Pet. 27 (“[I]ncorporating Kitagawa’s teachings into that of Lofi is simply the combination of familiar elements according to known methods to yield predictable results.” (citing Ex. 1005 ¶ 122))).

Based on the foregoing and the complete record before us, we find Petitioner sufficiently establishes that the skilled artisan would have had a rational reason to combine these teachings of Lofi and Kitagawa.

d. Undisputed Limitations

Petitioner contends the remaining limitations of independent claim 1, namely, limitations 1[pre], 1[a], 1[b], 1[d], 1[e], and 1[g]–1[i], also would have been taught or at least fairly suggested by the combination of Lofi and Kitagawa. Pet. 27–31, 36–39, 41–43. Petitioner provides a detailed assessment of where it believes the features of these limitations reside in Lofi or Kitagawa, and where relevant, provides sufficient rational reason(s) for combining Lofi and Kitagawa to arrive at the subject limitations, all with references to the declaration testimony of Dr. Fischer. *See id.* (citing, *inter alia*, Ex. 1005 ¶¶ 54–55, 66, 69–71, 122, 128); *see also* Ex. 1005 ¶¶ 116–121, 123–127. Patent Owner does not contend that the remaining limitations in claim 1 are absent in the combination of Lofi and Kitagawa, except as implicated by the disputed limitations, and therefore, has waived such arguments, as discussed above. For the reasons set forth in the Petition (Pet. 28–31, 36–39, 41–43), and based on the evidence cited therein (*see, e.g.,* Ex. 1005 ¶¶ 54–55, 66, 69–71, 122, 128), we are persuaded that Petitioner establishes that both (a) the combination of Lofi and Kitagawa teaches or at least fairly suggests each of these remaining limitations; and (b) where relevant, the skilled artisan would have had a rational reason to combine Lofi and Kitagawa to arrive at the invention as recited in independent claim 1.

e. Conclusion for Independent Claim 1

For the foregoing reasons, and the reasons stated in the Petition (Pet. 27–43), we conclude that Petitioner has demonstrated by a preponderance of the evidence that independent claim 1 would have been

unpatentable as obvious over the combination of Lofi and Kitagawa. *Cf. supra* § III.D.2.a (anticipation of claim 1 by Lofi).

3. *Dependent Claims 5–7*

Petitioner contends claims 5–7, which depend directly from independent claim 1, are unpatentable as obvious over the combination of Lofi and Kitagawa. Pet. 44–46.

For claims 5 and 6, the parties do not present any arguments separate from their arguments concerning anticipation of these claims by Lofi. *See* Pet. 44; *see generally* PO Resp.; PO Sur-reply.

For claim 7, Petitioner argues that, “[i]f Patent Owner contends that Lofi fails to disclose a predefined ordering of drills . . . , Kitagawa teaches this limitation.” Pet. 44. Petitioner argues “Kitagawa discloses an exemplary ordering of [an] exercise course as shown in Figure 1.” Pet. 44–45. Petitioner argues “Kitagawa’s exercise courses constitute a set of drills wherein each of them involves similar exercises that challenge the same physical abilities, such as strength, flexibility, and agility.” Pet. 45 (citing Ex. 1005 ¶¶ 129–130). Petitioner submits that “[i]ncorporating Kitagawa’s teaching of a predefined ordering of exercises that repeatedly challenge the same physical abilities into Lofi’s fitness tests for endurance, strength, flexibility, and balance is a simple substitution.” Pet. 45–46 (citing Ex. 1005 ¶¶ 129–130). “After all,” according to Petitioner, “Lofi’s terminal is intended to repeatedly assess the user’s performance, and [the skilled artisan] would have understood that a predefined order of exercises advantageously provided ‘a consistent and meaningful comparison of the user’s performance over repeated use.’” Pet. Reply 17–18 (citing Ex. 1005 ¶ 130; Ex. 2005, 120:16–121:5).

We agree with Petitioner that Kitagawa teaches, *inter alia*, a predefined ordering of exercises, such as shown in Kitagawa's Figure 1, and that the skilled artisan would have combined this teaching with Lofi at least to "advantageously provide[] 'a consistent and meaningful comparison of the user's performance over repeated use'" (Pet. Reply 18).

Patent Owner does not present any separate arguments that are distinct to claim 7 in this obviousness context, and instead relies on its same arguments presented against anticipation of claim 7 by Lofi discussed above. PO Resp. 15 n.3. We find those arguments unavailing here for the same reasons given above in the context of anticipation of claim 7 by Lofi. *See supra* § III.D.2.c.

Based on the foregoing and the reasons provided above for independent claim 1, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 5–7 would have been unpatentable as obvious over the combination of Lofi and Kitagawa. *Cf. supra* § III.D.2.b, 2.c (anticipation of claims 5–7 by Lofi).

F. Obviousness of Claims 1, 5–7, and 12 over the Combination of Maeueller and Kitagawa

Petitioner contends claims 1, 5–7, and 12 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of Maeueller (Ex. 1003) and Kitagawa (Ex. 1004). Pet. 10–13, 46–64; Pet. Reply 18–22. Patent Owner opposes Petitioner's contentions. PO Resp. 37–48; PO Sur-reply 19–23. For the reasons expressed below, and based on the complete record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 5–7, and 12

would have been unpatentable as obvious over the combination of Maeueller and Kitagawa. We turn first to an overview of Maeueller.

1. Overview of Maeueller (Ex. 1003)

Maeueller relates to a “fitness test system.” Ex. 1003 ¶ 1. Maeueller states, “[t]here is widespread agreement among experts that there are five crucial components of physical fitness as far as it relates to health: endurance, strength, flexibility, balance, and body composition.” *Id.* ¶ 4. Maeueller’s system calculates a “fitness test result,” which is “indicative of a user’s fitness, for a plurality of components of physical fitness such as endurance, strength, flexibility, balance, and body composition.” *Id.* at code (57). According to Maeueller, “[b]y testing a plurality of different components of physical fitness a multi-dimensional test result may be obtained which assists the user in identifying components which are at satisfactory level as well as components which need improvement.” *Id.* ¶ 10.

Maeueller discloses a peripheral device (e.g., exercise mat 21 or wearable monitor, e.g., bands 41) containing one or more sensors to collect activity data about an individual during a fitness test. Ex. 1003 ¶¶ 47–49. Other exemplary wearable monitors include an accelerometer, an oximeter, and a pulse rate meter worn as a belt or as a strap attached to the chest. *Id.* ¶¶ 48–49. Maeueller discloses providing instructions to users on how to perform fitness test movements: “from analysis of the received sensor signals, the system may further be programmed to check the correctness of the performed movement, as well as to give instructions on how to perform a given test in the event it is detected that the user’s movements are incorrect.” *Id.* ¶ 50. Maeueller’s system is “programmed for automatic coordination of

and interaction with peripheral devices to determine the input parameters and calculate the fitness test result.” *Id.* ¶ 11. In Maeueler, fitness test results “may be represented by a fitness index in the form of a numerical score value, such as a value ranging from 0 to 5 for each of the components of physical fitness, as well as a *combined (average or weighted average) aggregate fitness index.*” *Id.* ¶ 51 (emphasis added).

Maeueler’s Figure 5, reproduced below, illustrates an example of a graphical visualization of the fitness test result, where “each health-related component is presented by a column: cardiovascular endurance 50, muscle strength 51, flexibility 52, balance 53, body composition 54 and an aggregate fitness index 55.” Ex. 1003 ¶ 52, Fig. 5.

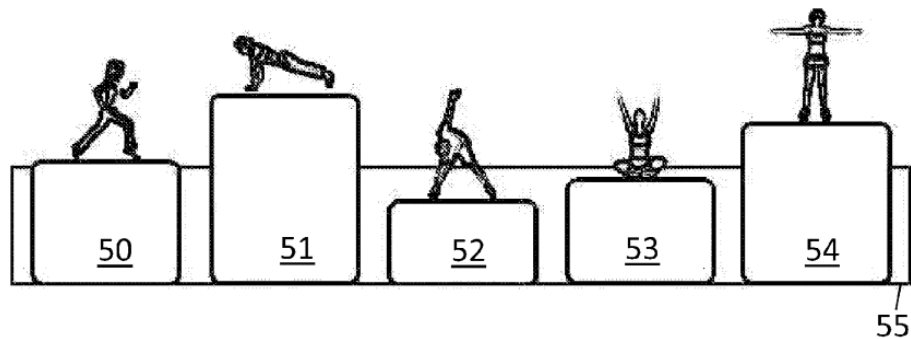


FIG. 5

Figure 5 depicts an example of a graphical visualization of the fitness test result.

Id. ¶¶ 22, 52, Fig. 5.

We further discuss below the disclosure of Maeueler in connection with the parties’ arguments.

2. Independent Claim 1

Petitioner contends independent claim 1 would have been unpatentable under 35 U.S.C. § 103 as obvious over the combination of

Maeueller and Kitagawa. Pet. 10–13, 46–61; Pet. Reply 18–22. The parties again dispute whether this combination teaches or suggests limitations 1[c] and 1[f]. Patent Owner does not contend that the remaining limitations in claim 1 are absent in the combination of Maeueller and Kitagawa, except as implicated by these disputed limitations, and therefore, has waived such arguments, as discussed above. We address below limitations 1[c] and 1[f] in turn and then we turn to the sufficiency of Petitioner’s uncontested allegations.

a. Disputed Limitation 1[c]

Petitioner contends Maeueller teaches or suggests limitation 1[c] by describing, *inter alia*, a computing module (processor) that calculates a fitness test result based on collected activity data indicative of a user’s fitness. Pet. 50 (citing Ex. 1003 ¶¶ 17, 20, 53, code (57)). Petitioner argues the activity data is received from peripheral device(s) and corresponds to a user’s movement(s). Pet. 50. Petitioner argues Maeueller discloses the “combinatory fitness-athleticism score” feature in limitation 1[c]:

[Maeueller] discloses that “the user may also select one or more components of physical fitness and the computing module handles the selection of suitable, representative fitness tests associated to each selected component.” (*Id.* at [0023].) According to Maeueller, “the execution of the test is monitored by the system through the use of sensors” and “upon execution of the test, the user is presented with the test result.” (*Id.*) The fitness tests relate to various components of physical fitness, including cardiovascular endurance, muscle strength, flexibility, balance, and body composition. (*Id.* at [0027].) Maeueller teaches that “[t]he result of a fitness test may be represented by a fitness index in the form of a numerical score value, such as a value ranging from 0 to 5 for each of the components of physical

fitness, as well as a combined (average or weighted average) aggregate fitness index.” (Id. at [0051].)

Pet. 51 (emphasis added).

Based on the foregoing, Petitioner submits, “using Maeueler’s computing module, a user can select two components of physical fitness to assess (*e.g.*, flexibility and balance), perform the exercises associated with each test while being monitored with sensors, and ultimately receive a numerical fitness test result reflecting a combination of the flexibility and balance attributes being evaluated.” Pet. 52 (citing Ex. 1005 ¶ 94). We find Petitioner’s arguments persuasive.

Patent Owner disputes Petitioner’s contentions for limitation 1[c] using substantially the same arguments it proffered against anticipation by Lofi (*see supra* § III.D.2.a.4) and obviousness over the combination of Lofi and Kitagawa (*see supra* § III.E.2.a). *See* PO Resp. 37–41; PO Sur-reply 19–20. For example, Patent Owner argues “[a]s with Lofi, Maeueler does not teach a method of calculating *both* a fitness sub-score and an athleticism sub-score (and as a result, a ‘combinatory fitness-athleticism score’) that is based on ‘activity data,’ which is derived from a *single* ‘athletic movement.’” PO Resp. 38; *see id.* at 38–41; PO Sur-reply 19–20. But as we explain above in Sections III.D.2.a.4 and III.E.2.a, we find Patent Owner’s “*single* ‘athletic movement’” arguments unavailing, and do so here too for the same reasons.

Based on the foregoing evidence and the reasons stated in the Petition at pages 50–52, we find Petitioner sufficiently establishes that Maeueler (and the combination of Maeueler and Kitagawa) teaches or suggests limitation 1[c].

b. Disputed Limitation 1[f]

Petitioner contends Maeueller teaches or suggests limitation 1[f] by describing, *inter alia*, “that the fitness test [such as discussed above concerning limitation 1[c]] is repeated ‘so that the user can monitor the progress over time or see a trend,’” and “[w]hen a user repeats the tests . . . with respect to Elements 1[a]–1[d], a second combinatory fitness-athleticism score is calculated.” Pet. 55–56 (citing Ex. 1003 ¶ 24).

Patent Owner disputes Petitioner’s contentions for limitation 1[f] concerning Maeueller alone using substantially the same arguments it proffered against anticipation by Lofi (*see supra* § III.D.2.a.7) and obviousness over the combination of Lofi and Kitagawa (*see supra* § III.E.2.b). *See* PO Resp. 41–44; PO Sur-reply 19–20. For example, Patent Owner argues, “just like the ‘first activity data’ in limitation 1C—the ‘second activity data’ recited in claim 1 must (i) derive from a *single* athletic movement performed in response to ‘second instructions’ and (ii) include separate measurements of both fitness and athleticism.” PO Resp. 42; *see id.* at 41–44; PO Sur-reply 19–20. But as we explain above in Sections III.D.2.a.4, III.D.2.a.7, III.E.2.a, and III.E.2.b, we find Patent Owner’s “*single* athletic movement” arguments unavailing, and do so here too for the same reasons.

Based on the foregoing evidence and the reasons stated in the Petition at pages 55–56, we find Petitioner sufficiently establishes that Maeueller teaches or suggests limitation 1[f].

Petitioner alternatively contends Kitagawa (and the combination of Maeueller and Kitagawa) teaches or suggests limitation 1[f] for the same reasons given for the combination of Lofi and Kitagawa. Pet. 56–58; *see*

supra § III.E.2.b. Patent Owner disputes Petitioner’s contentions for limitation 1[f] concerning Kitagawa (and the combination of Maeueler and Kitagawa) using substantially the same arguments it proffered against obviousness over the combination of Lofi and Kitagawa (*see supra* § III.E.2.b). *See* PO Resp. 44–45; PO Sur-reply 19–20. But as we explain above in Sections III.E.2.a and III.E.2.b, we find Patent Owner’s arguments unavailing, and do so here too for the same reasons.

Based on the foregoing evidence and the reasons stated in the Petition at pages 56–58, we find Petitioner sufficiently establishes that Kitagawa (and the combination of Maeueler and Kitagawa) teaches or suggests limitation 1[f].¹¹

c. Reason to Combine Maeueler and Kitagawa

The parties dispute whether a rational reason exists to combine the teachings of Maeueler and Kitagawa. *See, e.g.*, Pet. 46, 57–58; PO Resp. 45–47; Pet. Reply 20–21; PO Sur-reply 20–22.

Petitioner argues the skilled artisan would have combined the teachings of Kitagawa with Maeueler for substantially the same reasons the skilled artisan would have combined the teachings of Kitagawa with Lofi, as discussed above in Section III.E.2.c. *See* Pet. 46, 57–58. In particular, Petitioner argues the skilled artisan would have combined the teachings of

¹¹ In discussing limitation 1[f], Petitioner identifies, *inter alia*, an “exemplary endurance test” in Maeueler of running for 12 minutes, which allegedly involves collection or calculation of heart rate data and speed data. *See* Pet. 55–56. The parties dispute the import of this endurance test to the obviousness challenge. *See* PO Resp. 42–44; Pet. Reply 19–20; PO Sur-reply 19–20. We do not rely on this particular disclosure in Maeueler in addressing this obviousness ground.

Maeueller and Kitagawa because doing so “would [have] yield[ed] the predictable result of generating combinatory scores for every fitness test,” and *allow a user “to more comprehensively understand which components [of physical fitness] need improvement.”* Pet. 57–58 (citing Ex. 1005 ¶ 136) (emphasis added); *see* Pet. 46 (“[S]ubstituting Kitagawa’s teachings into that of Maeueller is simply the combination of familiar elements according to known methods to yield predictable results.”).

Patent Owner disputes whether the skilled artisan would have combined the teachings of Kitagawa with Maeueller using substantially the same arguments it proffered against combining the teachings of Kitagawa with Lofi (*see supra* § III.E.2.c). *See* PO Resp. 45–47; PO Sur-reply 20–22; Pet. Reply 20 (“[Patent Owner] makes the same arguments regarding the motivation to combine Maeueller and Kitagawa (Ground 3) as for Lofi and Kitagawa (Ground 2).”). But as we explain above in Section III.E.2.c, we find Patent Owner’s arguments unavailing, and do so here too for the same reasons.

Patent Owner additionally argues “the proposed combination is *redundant* because Maeueller already solves the problem that [Petitioner] relies on Kitagawa to solve.” PO Resp. 46–47 (citing Ex. 2004 ¶ 91) (emphasis added). Petitioner responds:

What Kitagawa adds is multiple exercise courses for various attributes to generate unique scores, thereby providing a more comprehensive understanding of strength, flexibility, balance, agility, and intelligence. (Ex. 2005, 112:20–113:7, 116:11–19, 118:7–13.) Thus, the combination improves Maeueller’s test. (Ex. 1005, ¶¶ 133–136; Ex. 2005, 114:11–24 (“Maeueller explicitly describes . . . creat[ing] combinatory scores, including averaging test results, so [Kitagawa] would just be a simple,

easily implemented improvement on a way to generate a different type . . . of combinatory score.”), 116:25–117:5.)

Pet. Reply 20–21. Patent Owner replies by alleging that (1) “Maeueller already discloses measuring strength, flexibility, and balance—albeit through separate tests, performed in response to separate instructions”; (2) Petitioner does not explain why the skilled artisan would have looked to Kitagawa “to add agility as an additional physical ability to be monitored in addition to those already monitored in Maeueller”; and (3) the Challenged Claims do not recite “intelligence” as a fitness or athleticism sub-score. PO Sur-reply 20–22. We find Patent Owner’s arguments unavailing. As to arguments (2) and (3), we do not rely on Petitioner’s citations to “agility” or “intelligence” in addressing obviousness of claim 1.

As to argument (1), we note that Petitioner turns to Kitagawa in the alternative, and does so “[i]f Patent Owner contends that Maeueller does not teach *a second combinatory fitness-athleticism score*,” which Patent Owner so contends. Pet. 56 (emphasis added); PO Resp. 41–43. As noted above in Section III.E.2.b, we understand Petitioner to argue that Kitagawa’s disclosure of using *multiple* exercise courses, each designed to assess *both* fitness and athleticism attributes, to determine a user’s age, teaches or at least fairly suggests *multiple* “combinatory fitness-athleticism scores,” including the “first” *and* “second” combinatory scores recited in claim 1. Petitioner argues that incorporating this feature of multiple exercise courses, each implicating combinations of various fitness and athleticism attributes to generate unique scores, would have allowed for a “more” comprehensive understanding of strength, flexibility, and balance, among other parameters. Pet. Reply 20–21; *see* Ex. 1005 ¶¶ 131 (“[I]t would have been obvious to

combine Maeueller’s monitoring of a user’s athletic activity using sensors with Kitagawa’s exercises that simultaneously assess multiple physical activity attributes with a reasonable expectation of success.”), 132 (“Kitagawa describes various exercises are intended to assess specific aspects of physical fitness ‘such that a user can demonstrate a variety of physical abilities, including muscle strength at multiple places of his/her body, flexibility of the body, balance of the body, and agility of the body.’” (citing Ex. 1004, 3:56–59)), 133–138. For at least the foregoing reasons, we disagree with Patent Owner that the proposed combination is redundant.

Based on the foregoing and the complete record before us, we find Petitioner sufficiently establishes that the skilled artisan would have had a rational reason to combine these teachings of Maeueller and Kitagawa.

d. Undisputed Limitations

Petitioner contends the remaining limitations of independent claim 1, namely, limitations 1[pre], 1[a], 1[b], 1[d], 1[e], and 1[g]–1[i], also would have been taught or at least fairly suggested by the combination of Maeueller and Kitagawa. Pet. 46–50, 52–54, 58–61. Petitioner provides a detailed assessment of where it believes the features of these limitations reside in Maeueller or Kitagawa, and where relevant, provides sufficient rational reason(s) for combining Maeueller and Kitagawa to arrive at the subject limitations, all with references to the declaration testimony of Dr. Fischer. *See id.* (citing, *inter alia*, Ex. 1005 ¶¶ 94, 100, 102, 103, 132–136); *see also* Ex. 1005 ¶¶ 131. Patent Owner does not contend that the remaining limitations in claim 1 are absent in the combination of Maeueller and Kitagawa, except as implicated by the disputed limitations, and therefore, has waived such arguments, as discussed above. For the reasons set forth in

the Petition (Pet. 46–50, 52–54, 58–61), and based on the evidence cited therein (*see, e.g.*, Ex. 1005 ¶¶ 94, 100, 102, 103, 132–136), we are persuaded that Petitioner establishes that both (a) the combination of Maeueller and Kitagawa teaches or at least fairly suggests each of these remaining limitations; and (b) where relevant, the skilled artisan would have had a rational reason to combine Maeueller and Kitagawa to arrive at the invention as recited in independent claim 1.

e. Conclusion for Independent Claim 1

For the foregoing reasons, and the reasons stated in the Petition (Pet. 10–13, 46–61), we conclude that Petitioner has demonstrated by a preponderance of the evidence that independent claim 1 would have been unpatentable as obvious over the combination of Maeueller and Kitagawa. *Cf. supra* § III.E.2 (obviousness of claim 1 over the combination of Lofi and Kitagawa).

3. Dependent Claims 5, 7, and 12

Petitioner contends claims 5, 7, and 12, which depend directly from independent claim 1, would have been unpatentable as obvious over the combination of Maeueller and Kitagawa. Pet. 61–64. The Petition provides a detailed assessment of these claims, with references to the Petition’s analysis of claim 1 and disclosures in Maeueller and Kitagawa. *Id.* Patent Owner does not present any separate arguments that are distinct to any of these claims. Rather, Patent Owner generally states the view that the alleged deficiencies in the Petition with respect to claim 1 also are applicable to claims 5, 7, and 12. *See generally* PO Resp.; PO Sur-reply; Pet. Reply 22. As discussed above, we are persuaded that the cited evidence sufficiently

supports Petitioner’s contention that independent claim 1 would have been unpatentable as obvious over the combination of Maeueller and Kitagawa. For the same reasons provided above for independent claim 1, and the reasons set forth in the Petition (Pet. 61–64), we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claims 5, 7, and 12 would have been unpatentable as obvious over the combination of Maeueller and Kitagawa.

4. Dependent Claim 6

Petitioner contends claim 6, which depends directly from independent claim 1, would have been unpatentable as obvious over the combination of Maeueller and Kitagawa. Pet. 62; Pet. Reply 22. Patent Owner opposes. PO Resp. 47–48; PO Sur-reply 23.

Dependent claim 6 recites, “wherein the first instructions and the second instructions include a plurality of drills configured to test a plurality of fitness attributes of the user and a plurality of athleticism attributes of the user.” Ex. 1001, 26:57–60.

Petitioner contends “Maeueller provides instructions for a plurality of drills, such as strength, flexibility, endurance, and balance drills,” and refers to its analysis of limitations 1[a] and 1[d]. Pet. 62. Patent Owner argues Petitioner “identifies only a single athleticism attribute—balance,” not “‘a plurality of athleticism attributes of the user’ as recited in claim 6,” and “[t]hus, [Petitioner] has not shown that Maeueller teaches claim 6.”

Petitioner responds that “balance” is not the only athleticism attribute disclosed in Maeueller,” because Maeueller also discloses a “12-minute run test [that] produces a speed attribute (along with an endurance attribute).” Pet. Reply 22. Patent Owner replies that “Maeueller’s 12-minute run test

does not disclose measuring speed.” PO Sur-reply 23. In sum, Patent Owner argues that, because Petitioner identifies only a single athleticism attribute (balance), Petitioner fails to show that the combination of Maeueller and Kitagawa teaches claim 6. Patent Owner does not explain *why*. Regardless, we find Patent Owner’s arguments unavailing in this *obviousness* context given the complete record before us.

The test for obviousness is not whether the claimed invention is *expressly* suggested in any one or all of the references, but whether *the claimed subject matter* would have been obvious to those of ordinary skill in the art *in light of the combined teachings* of those references. *See In re Keller*, 642 F.2d at 425; *Burckel*, 592 F.2d at 1179 (“[A] reference must be considered not only for what it expressly teaches, but also for what it fairly suggests.”). One of ordinary skill can use his or her ordinary skill, creativity, and common sense to make the necessary adjustments and further modifications to result in a properly functioning device. *See KSR*, 550 U.S. at 418 (“[A] court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”). In this case, the skilled artisan has a bachelor’s degree in engineering, computer science, industrial design, biomechanics, or a related field, and at least two years of experience in such areas as fitness or physiological sensors, wearable devices, and physiological or biomechanical devices. *See supra* § III.B.

As argued by Petitioner (Pet. 62), Maeueller would have taught the experienced biomechanics engineer to provide users with instructions to perform a plurality of drills, such as strength, flexibility, endurance, and balance drills, which based on this listing includes teaching drills configured to test a plurality of “fitness attributes” of the user (strength, flexibility,

endurance), as well as at least one “athleticism attribute” of the user (balance). Given this combined disclosure of testing a plurality of fitness attributes and testing an athleticism attribute, we find the skilled artisan would have found this disclosure to teach *or at least fairly suggest* testing not just one, but a “plurality” of athleticism attributes of the user (just like the “fitness attributes”).

Furthermore, the '930 patent states that “example athleticism attributes may *include, but are not limited to:* speed, *agility*, reaction, power, *balance*, and combinations thereof.” Ex. 1001, 23:38–41 (emphases added). Petitioner contends claim 6 would have been unpatentable as obvious over *the combination of Maeueller and Kitagawa*. Pet. 15. The briefing in this case repeatedly references Kitagawa’s disclosure of evaluating both “balance” and “agility” during the performance of exercises—“agility” per claim 1 is another “athleticism attribute.” *See, e.g.*, Ex. 1001, 26:38–42; Pet. 56–57 (Petitioner arguing “[a]s shown in Table 3 . . . , flexibility, *balance*, and *agility* are physical attributes measured for each course and a user thus receives a combinatory score upon execution of each course the user is instructed to complete” (emphasis added)); Ex. 1004, code (57) (“The exercise courses are formed so that the user demonstrates various physical abilities, including muscle strength at multiple portions of his/her body, flexibility of the body, *balance* of the body, and *agility* of the body.” (emphases added)); PO Resp. 45 (Patent Owner discussing Kitagawa’s Table 3, which includes “balance” and “agility”). We find the foregoing record supports our above determination that the skilled artisan would have found Maeueller to teach *or at least fairly suggest* testing not just one, but a “plurality” of athleticism attributes of the user, and plainly shows that these

features would have been taught or fairly suggested by the combination of Maeueller and Kitagawa.

Based on the foregoing and the reasons provided above for independent claim 1, we conclude that Petitioner has demonstrated by a preponderance of the evidence that dependent claim 6 would have been unpatentable as obvious over the combination of Maeueller and Kitagawa.

IV. CONCLUSION

Petitioner has met its burden to show, by a preponderance of the evidence, that claims 1, 5–7, and 12 are unpatentable on the asserted grounds.¹²

V. ORDER

Upon consideration of the record, it is

ORDERED that claims 1, 5–7, and 12 of U.S. Patent No. 10,188,930 B2 are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1, 5–7	102	Lofi	1, 5–7	
1, 5–7	103	Lofi, Kitagawa	1, 5–7	
1, 5–7, 12	103	Maeueler, Kitagawa	1, 5–7, 12	
Overall Outcome			1, 5–7, 12	

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