

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JAND, INC. D/B/A WARBY PARKER,
Petitioner

v.

VISIBLY, INC. (F/K/A OPTERNATIVE, INC.),
Patent Owner

Case No. IPR2018-00802
Patent No. 9,504,378 B2

Before KALYAN K. DESHPANDE, GARTH D. BAER, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73
DECISION ON MOTION TO AMEND
35 U.S.C. § 316(d) and 37 C.F.R. 42.121

I. INTRODUCTION

Jand Inc. d/b/a/ Warby Parker (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–9, 11–17, and 19–22 of U.S. Patent No. 9,504,378 B2 (Ex. 1001, “the ’378 patent”). Visibly, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 8, “Prelim. Resp.”) to the Petition. On September 17, 2018, we entered our Decision on Institution (Paper 9, “Dec.” or “Decision”) instituting *inter partes* review of all challenged claims under all asserted grounds. Dec. 39–40. After institution of trial, Patent Owner filed a Patent Owner Response (Paper 22, “PO Resp.”), Petitioner filed a Reply to Patent Owner’s Response (Paper 32, “Pet. Reply”), and Patent Owner filed a Sur-Reply to Petitioner’s Reply to Patent Owner’s Response (Paper 39, “PO Sur-Reply”).

Patent Owner also filed a Contingent Motion to Amend (Paper 23, “Mot. Amend”). Petitioner filed an Opposition to Patent Owner’s Contingent Motion to Amend (Paper 33, “Opp. Amend”), Patent Owner filed a Reply to Petitioner’s Opposition to Patent Owner’s Contingent Motion to Amend (Paper 40, “PO Reply Amend”), and Petitioner filed a Sur-Reply to Patent Owner’s Contingent Motion to Amend (Paper 44, “Pet. Sur-Reply Amend”).

In addition, Patent Owner filed a Motion to Exclude Evidence (Paper 43, “Mot. Exclude”), Petitioner filed an Opposition (Paper 46, “Pet. Opp. Mot. Exclude”), and Patent Owner filed a Reply (Paper 48, “PO Reply Mot. Exclude”).

In addition, Patent Owner filed a confidential Motion to File Supplemental Information (Paper 63, “PO Mot. Supp.”) and Petitioner filed a confidential Opposition (Paper 65, “Pet. Opp. Mot. Supp.”). Petitioner

also filed a confidential Motion to File Supplemental Information (Paper 60, “Pet. Mot. Supp.”) and Patent Owner filed a confidential Opposition (Paper 64, “PO Opp. Mot. Supp.”). Both parties also filed Motions to File their Motions and Oppositions under seal. Papers 59, 62.

Oral argument was held on June 19, 2019 in Alexandria, Virginia, and a transcript of the oral hearing has been entered into the record. See Paper 55 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b). Having reviewed the arguments of the parties and the supporting evidence, we find that Petitioner has demonstrated by a preponderance of the evidence that all challenged claims 1–9, 11–17, and 19–22 of the ’378 patent are unpatentable. In addition, we deny Patent Owner’s Contingent Motion to Amend to replace claims 1–22 with substitute claims 23–37.

II. BACKGROUND

A. *The ’378 Patent (Ex. 1001)*

The ’378 patent is titled “Computerized Refraction Prescription Determination With Sphere Calculation.” The invention is generally directed to a system and method for determining a person’s refractive error by using a computerized screen rather than a refractor lens assembly, and then providing the person with a prescription for corrective lenses. Ex. 1001, Abstr. The system and method “do not require the trip or expense of a doctor visit, and are optimized for convenience and cost effectiveness.” *Id.* at Abstr.; see also *id.* at 2:37–44, 2:59–64, 3:12–15.

The principle refractive errors that patients seek treatment for are nearsightedness, farsightedness, and astigmatism. *Id.* at 1:57–59. A

prescription to correct refractive error requires knowing the corresponding sphere measurement (nearsightedness or farsightedness) or axis and cylinder measurements (astigmatism). *Id.* at 1:40–59. The sphere measurement “indicates the strength or power necessary to correct for the optical defects.” *Id.* at 1:47–50. The axis measurement “indicates the angle along which any image viewed by the patient is distorted” and the cylinder measurement “indicates the strength or power of the distortion.” *Id.* at 1:51–57.

The ’378 patent describes that the refractive error of the patient is determined by using a computerized screen or other suitable visual tool. *Id.* at 3:7–12. In some embodiments, a patient may use one computerized screen, such as a smartphone, as a remote control to control another computerized screen, such as a kiosk or personal computer. *Id.* at 12:9–15. The ’378 patent teaches that the refractive error may be determined from factors such as the distance between the patient and the computerized screen, the original size of the diagram or figure on the computerized screen, the patient-adjusted size of the diagram or figure on the computerized screen, the number of inputs received from the patient, the amount of incremental effect of each input, and other relevant factors. *Id.* at 11:37–46.

The ’378 patent discloses, “[t]he system must know the distance of the patient [from the screen] in order to accurately calculate the sphere measurements from the eye tests” and “any suitable distance between the patient and the screen may be used.” *Id.* at 19:2–4, 19:27–28. The Specification describes alternative ways to determine the distance between the patient and the computer screen, such as by using a camera and holding a credit card a specified distance from the screen or by using the patient’s shoe size and gender. *Id.* at 18:65–19:63. In the latter method, the patient may

estimate their distance from the computer screen using heel-to-toe measurements and enter that distance into the system, or the system may instruct the patient to take a determined number of heel-to-toe steps from the computerized screen. *Id.* at 19:55–63. The system may also determine the distance between the patient and the computer screen by using pupillary distance, the height of the patient, or known camera specifications of a particular device or patient terminal. *Id.* at 38:9–21.

Once the patient is a suitable distance from the computer screen, the system displays a figure on the computer screen and provides patient-selectable icons to adjust the size of the figure. *Id.* at 20:9–21, Figs. 7A, 7B. In one embodiment, the figure starts small enough so the figure cannot be clearly seen by the patient, so the patient must make at least one input to increase the size of the figure; in another embodiment, the figure starts large enough to be clearly seen by the patient, so the patient must make at least one input to decrease the size of the figure. *Id.* at 20:21–31. The system determines the sphere measurement from at least one input of the eye tests and either or both eye tests may be performed one or more times per eye of the patient. *Id.* at 20:32–45. Similarly, the system may determine the axis and cylinder measurements using at least one input of the eye tests. *E.g., id.* at 25:5–14, Figs. 10A, 10B. Following the tests, the system provides the patient their requested prescription. *Id.* at Fig. 1B, 10:51–53.

B. Illustrative Claims

Among the challenged claims, claims 1, 13, and 21 are independent. Independent claim 1 and dependent claims 3 and 11, reproduced below, are representative.

1. A method for determining a corrective lenses prescription for a person comprising, separately, for each eye of the person:

determining a distance of the person from a computerized screen; and

determining a sphere prescription for the person via the computerized screen and without the use of a refractor lens assembly,

wherein determining the sphere prescription for the person comprises testing for the sphere prescription by:

displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one input, and

using the at least one input in conjunction with the determined distance of the person from the computerized screen to calculate a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person.

Ex. 1001, 44:63–45:13.

3. The method according to claim 2, wherein determining the sphere prescription for the person via the computerized screen comprises:

(iii) presenting a second figure to the person via the computerized screen, wherein the second sphere figure is large enough to be clearly seen by the person, and

(iv) enabling the person to make at least one input to decrease the size of the second figure just until it can no longer be made out by the person, wherein at least one input corresponds to a second sphere measurement.

Id. at 45:26–35.

11. The method according to claim 1, wherein the computerized screen comprises two or more computerized screens.

Id. at 45:62–64.

C. Instituted Grounds

We instituted an *inter partes* review on all of Petitioner’s requested grounds as shown below:

References	Basis	Claims Challenged
Maddalena ¹ and Berry ²	§ 103(a)	1, 2, 7–9, 13, 15–17, and 22
Maddalena, Berry, and Yoo ³	§ 103(a)	11, 12, 19, and 20
Maddalena, Berry, and Chou ⁴	§ 103(a)	3–6, 14 and 21

Pet. 4. In addition to the references listed above, Petitioner relies on the Declarations of Christopher J. Brady, MD, MHS (Exs. 1009, 1040). Patent Owner relies on the Declaration of Dr. Peter Thomas (Ex. 2007). The record

¹ U.S. Patent No. 7,367,675 B2, issued May 6, 2008, Ex. 1004.

² U.S. Patent Pub. No. 2013/0141697 A1, filed June 23, 2011 and published June 6, 2013, Ex. 1005.

³ U.S. Patent Pub. No. 2011/0027766 A1, filed Aug. 3, 2009 and published Feb. 3, 2011, Ex. 1006.

⁴ U.S. Patent Pub. 2012/0212706 A1, filed Feb. 23, 2012 and published Aug. 23, 2012, Ex. 1007.

also includes deposition transcripts for Dr. Brady and Dr. Thomas (Exs. 2007, 2009).

III. ANALYSIS

A. Claim Interpretation

Petitioner proposes a construction for the term “sphere figure.” Pet. 17–18. For purposes of this Final Written Decision, based on the complete record, we determine that no express claim construction of the term “sphere figure” is necessary to resolve the dispute between the parties. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”); *see infra* Section III.E.1.d.

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103(a) if, to one of ordinary skill in the pertinent art, “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. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). The question of obviousness is resolved based on underlying factual determinations, including the “scope and content of the prior art,” “differences between the prior art and the claims at issue,” “the level of ordinary skill in the pertinent art,” and objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re*

Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

To establish obviousness, a petitioner must “demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (internal quotation marks omitted); *see also KSR*, 550 U.S. at 418 (explaining that for an obviousness analysis, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does”). A motivation to combine the teachings of two references can be “found explicitly or implicitly in market forces; design incentives; the ‘interrelated teachings of multiple patents’; ‘any need or problem known in the field of endeavor at the time of invention and addressed by the patent’; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013) (citation omitted). Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

C. Level of Ordinary Skill in the Art

The person of ordinary skill in the art is a hypothetical person who is presumed to be aware of all of the pertinent prior art. *Custom Accessories, Inc., v. Jeffrey-Allan Industries, Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986). In determining the level of ordinary skill in the art, we may consider the type of problems encountered in the art, prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of workers in the field. *Id.* The level of ordinary skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir.1991)).

Petitioner, with support of its declarant Dr. Brady, contends a person of ordinary skill in the art at the time of the alleged invention of the '378 patent “would have had (a) either (1) an M.D./D.O. with at least three years of specialization in ophthalmology or similar experience or (2) an O.D.; and (b) practical experience or training in ophthalmic telemedicine.” Pet. 16 (citing Ex. 1009 ¶ 58). Patent Owner, with support of its declarant Dr. Thomas, accepts part (a) of Petitioner’s definition, but argues part (b) is deficient. PO Resp. 5–6. Specifically, Patent Owner argues part (b) of Petitioner’s definition “fails to specify the scope of telemedicine experience a [person of ordinary skill in the art] would have possessed.” *Id.* at 6. Patent Owner does not propose an alternative definition for part (b).

Because the parties agree to part (a) of Petitioner’s proposed definition, we first determine if part (a) is sufficient standing alone, or if more is required. Patent Owner defines the problem of the '378 patent as

“developing a system that allows the user to take a vision test remotely and without the use of any specialized equipment.” PO Resp. 8; *see also* Ex. 1001, 3:9–12. Patent Owner recognizes such problems were “multidisciplinary.” PO Resp. 8. Dr. Brady, Petitioner’s expert, indicates Patent Owner “fairly characterizes one of the major problems addressed by” the ’378 patent and other prior art references. Ex. 1040 ¶ 8. Dr. Brady also indicates he considered how the prior art solved this problem, which reflected a need to use technology. *Id.* ¶ 9; *see* Pet. Reply 3. Patent Owner does not specifically refute Dr. Brady’s testimony as to the prior solutions to the problems encountered in the art. *See generally* PO Sur-Reply.

Dr. Brady’s testimony is consistent with the types of problems and solutions encountered in the ’378 patent and the prior art, including Maddalena (“lensless testing of vision using video display screens”), and Berry (“interactive medical testing and the diagnosis of medical conditions using portable consumer devices”). Ex. 1005 ¶ 3; Ex. 1004, 1:5–7; Ex. 1040 ¶ 9. Further, the ’378 patent, Maddalena, and Berry indicate a level of sophistication in the technology in that they are all computerized solutions. Although Dr. Thomas indicates he considers that part (a) of Petitioner’s proposed definition is “representative of the education levels of active workers in the field of the invention of the ‘378 Patent” (Ex. 2007 ¶ 42), we agree with Dr. Brady that “the field of the invention of the ‘378 patent is not traditional optometry; rather it is ophthalmic telemedicine.” Ex. 1040 ¶ 12. Both parties recognize “ophthalmic telemedicine” at least encompasses remote healthcare related to the eye. Ex. 2009, 64:5–70:10; Ex. 1029, 39:3–21; PO Resp. 6. Both parties also recognize that, generally, optometrists and ophthalmologists do not have significant experience with telemedicine, and

that training or experience in technical skills (e.g., software development or engineering) was not a standard part of the curricula in ophthalmic medicine or optometry at the time of invention. Ex. 2009, 49:17–59:13; Ex. 1040 ¶ 12; Ex. 2007 ¶¶ 42, 43; Ex. 1029, 101:2–14. Based on the foregoing, we agree with Dr. Brady that Patent Owner’s proposed level of ordinary skill in the art as an optometrist or ophthalmologist does not sufficiently define the level of skill in the art. Ex. 1040 ¶¶ 10, 12.

The crux of the dispute as to part (b) of Petitioner’s proposed definition is *what* experience or training in ophthalmic telemedicine is necessary. See PO Resp. 5–10; Pet. Reply 2–5; PO Sur-Reply 4–7. Dr. Thomas testifies that “‘practical experience or training in ophthalmic telemedicine’ does not imply any particular set of skills or knowledge.” Ex. 2007 ¶ 42. Patent Owner argues “ophthalmic telemedicine” is a broad term, but does not mean “development of a device for remotely determining prescriptions.” PO Resp. 7. Dr. Thomas also provides testimony that most ophthalmologists and optometrists were not experienced in developing methodologies for performing refraction outside of the clinical setting. Ex. 1029, 101:21–25; *see also id.* at 96:23–25. Dr. Brady testifies that “ophthalmic telemedicine” is “a multidisciplinary field drawing on experience from both medical and technical disciplines,” where the “technical experience could come from a variety of engineering disciplines

and ‘likely would include some training or background in source code.’”

Ex. 1040 ¶ 11.⁵

Patent Owner does not offer an alternative definition for part (b) of Petitioner’s proposed definition; rather, Dr. Thomas testifies that it “makes no difference” because optometrists and ophthalmologists do not ordinarily have any substantial technical skills via practicing the majority of telemedicine applications. See Ex. 1027 ¶ 43. However, we agree with Petitioner that the level of ordinary skill in the art requires more than an ophthalmologist or optometrist. We, therefore, adopt Petitioner’s proposal that one of ordinary skill in the art “would have had (a) either (1) an M.D./D.O. with at least three years of specialization in ophthalmology or similar experience or (2) an O.D.; and (b) practical experience or training in ophthalmic telemedicine.” We adopt this proposal based upon the type of problems encountered in the art, prior art solutions to those problems, and sophistication of the technology, as discussed above. However, we do not find it necessary to explicitly define the meaning of “practical experience or training in ophthalmic telemedicine,” because we find it is adequately reflected in the prior art of record, including Maddalena, Berry, Yoo, Chou,

⁵ Patent Owner argues Petitioner changed the definition of the person of ordinary skill in the art in the Reply. PO Sur-Reply 5–7; Mot. Exclude 7–8. Specifically, Patent Owner argues Dr. Brady’s testimony changes in his Reply Declaration and broadens the definition of a person of ordinary skill in the art from that set forth in the Petition. *Id.* We disagree; Petitioner and Dr. Brady are replying to arguments made by Patent Owner in Patent Owner’s Response that disputed Petitioner’s proposed definition of one of ordinary skill in the art.

and Bartlett. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

D. Summary of Prior Art

1. Maddalena (Ex. 1004)

Maddalena is titled “Vision Testing System” and generally discloses a method and apparatus for “testing the vision of a human subject using a series of eye tests.” Ex. 1004, Abstr. Maddalena uses a computer-based vision testing system that does not require the use of lenses, but rather allows the vision testing to be carried out on a vision display unit, such as a computer monitor. *Id.* at 4:63–67. Before the eye tests begin, the patient is required to measure out two or three distances, 40 cm, 100 cm, and/or 300 cm from the video display, as the tests will be carried out with the patient’s eyes positioned at these predetermined distances from the video display. *Id.* at 10:41–45, 12:5–7, 16:62–65. Maddalena explains “[t]hese distances are important to ensure accuracy, as visual acuity varies with test distance.”⁶ *Id.* at 10:45–47.

Maddalena describes a test setup procedure to adjust the settings of the display device, followed by a series of preliminary, static, and dynamic tests displayed on the display device. *Id.* at Abstr. The preliminary tests consist of a screening to determine whether the patient’s vision is within a

⁶ “Visual acuity refers to the acuteness or clearness of vision. It measures how one can see well. It is simply defined as the smallest visible feature the eyes can distinguish.” Ex. 1016, *Visual Acuity*, Hows Health, <https://web.archive.org/web/20120510174354/http://howshealth.com/visual-acuity/> (May 10, 2012 archive version, last visited Mar. 18, 2018) (bolding omitted).

normal range or whether further help is needed, and include a test for visual acuity and a test for astigmatism. *Id.* at 11:13–18. Following the preliminary tests, static tests are performed. Static tests are “a series of tests designed to examine, in detail, several aspects of the patient’s vision, including measurements of the spherical and cylindrical abnormalities of the optical system of each eye.” *Id.* at 13:35–39. The static tests first consist of three qualitative tests including the prefilter contrast test, the patient history question set, and a discrimination test, which are used to determine the best quantitative tests to run. *Id.* at 13:57–67, 15:35–48, 15:56–61. The quantitative tests include distance acuity tests, contrast pattern tests, near acuity tests, and astigmatism tests. *Id.* at 14:3–6, Fig. 5. Maddalena uses the information from the qualitative tests and subsequent quantitative tests to obtain measurements that will provide optimal results for each patient. *Id.* For example, the course of action may differ depending on if the patient is a child or an adult, or if there is a large or small refractive error. *Id.* at 14:6–10. The combination of results from the distance acuity tests and contrast tests allows an accurate estimation of both the spherical and cylindrical lens components. *Id.* at 14:29–32. The astigmatism tests give an accurate measurement of both the angle of the axis and the cylindrical lens power needed to correct any problems due to the astigmatism. *Id.* at 14:39–41.

The patient is provided instructions on how to run the tests and how to set up the viewing distances. *Id.* at 16:34–36. The distance acuity tests use a blocked C object on a red, white, or green background, which depicts four “C”s rotated such that the gap formed by the arms of the letter is facing up, down, left, and right, respectively. *Id.* at 11:34–36, 16:23–27, 17:12–14, 17:62–66. Alternatively, the letter E may be used. *Id.* at 16:31–33.

Maddalena recommends that the test be carried out by two people, but explains “[i]t is also possible for a single person to perform the test . . . , but with a little more difficulty.” *Id.* at 16:36–39.

The test involves pressing the Start button and allowing the patient to watch the boxed C object grow from a small size to a large size on the screen, ranging in size from 2 mm to 150 mm in steps of 2 mm. *Id.* at 16:40–44. When the patient can see the direction of the gap, the patient instructs the assistant to stop the growth of the C object. *Id.* at 16:45–48. If the patient conducts the test alone, there is a control to adjust a time delay interval between selecting the Start button and the start of the display of the boxed C to allow the patient to get into the proper test position. *Id.* at 16:49–55. The test is performed at two or three distances from the display screen, being 40 cm, 100 cm, and/or 300 cm, and at each distance, the test is run for both the left and right eye. *Id.* at 16:62–66. Each run of the test is repeated four times to obtain an average object size. *Id.* at 16:66–67. Similar visual acuity tests are performed on white, red, and green backgrounds. *See id.* at 16:16–18:11. A series of dynamic tests may also be performed that are designed to assess the binocular status of the patient, or, in other words, to determine that the two eyes are working together. *Id.* at 24:65–25:1.

After the series of static and dynamic tests have been completed, the patient results may be diagnosed by a diagnostic assistant program and/or by a legally registered optometrist in order to determine the suitable lens prescription for the patient. *Id.* at 6:48–58, 27:24–48, Fig. 7. The diagnostic assistant program analyzes the acuity data gathered during the tests for each eye, considers the spherical data, astigmatism data, and the history data, and

then calculates a suitable lens prescription. *Id.* at 27:45–48, 28:1–7, Fig. 7.

2. *Berry (Ex. 1005)*

Berry is titled “Interactive Medical Diagnosing With Portable Consumer Devices” and generally discloses performance of medical tests and examinations, including vision tests, on a portable computing device. Ex. 1005, Abstr., ¶ 12. During the vision test, Berry “presents the user with visual test element(s) at the display, while adjusting at least a visual size of the visual test element(s) based on the identified viewing distance” and “prompts the user to identify at least one of the visual test element(s) and receives user input identifying an element.” *Id.* ¶ 12. Based on the results, the portable consumer device identifies a visual acuity metric, a visual medical condition, a proposed visual treatment, and/or a corrective lens prescription. *Id.*

The viewing distance between the display of the portable consumer device and the user is used to adjust visual characteristics, such as size, of one or more of the test elements. *Id.* ¶ 65. Berry describes several ways to determine the viewing distance. *Id.* ¶¶ 66–72. For example, the user may expressly enter an approximate viewing distance between the user’s face and the display. *Id.* ¶ 66. The user may also provide physical characteristic information, such as the user’s arm length or sleeve length, which can be used to approximate the viewing distance when the portable consumer device is held at arm’s length. *Id.* Berry also describes that the viewing distance can be computed using a variety of sensory devices, such as a proximity sensor. *Id.* ¶¶ 67–68. In addition, Berry describes using one or more cameras included in the portable consumer device to automatically detect the viewing distance (e.g., based on facial detection technology), or to

detect the viewing distance with additional information provided by the user, such as additional physical characteristic information. *Id.* ¶ 69. The user may also use an object with a known size, such as a United States quarter, to configure the viewing distance. *Id.* ¶ 70. For example, the user will be prompted to hold the object near his or her face and the configuration component can use one or more cameras to detect a relative size/distance of the object and, by extension, the user's face. *Id.*

3. *Yoo (Ex. 1006)*

Yoo is titled "Unified Vision Testing and/or Training" and generally discloses systems and methods of visual testing using display and input devices. Ex. 1006, Abstr. In Yoo, an individual can respond to visual indicia displayed on a display device using an input device, including a handheld multi-touch input device such as an iPod touch. *Id.* ¶¶ 78, 94, 132, Fig. 1A.

4. *Chou (Ex. 1007)*

Chou is titled "Method and System for Self-Administering a Visual Examination Using a Mobile Computing Device" and discloses a self-administering visual examination using a mobile computing device. Ex. 1007, Abstr. Chou describes requesting the user to identify the display symbol, such as the C or E, among a number of symbols and displaying the user's visual acuity score based on the user's response to the requests. *Id.* ¶¶ 40–41. In Chou, "the displayed Landolt C becomes progressively smaller with correct responses, whereas the displayed Landolt C becomes progressively larger with incorrect responses from the user." *Id.* ¶ 42.

E. Grounds Based on Maddalena and Berry

Petitioner contends claims 1, 2, 7–9, 13, 15–17, and 22 would have been obvious over the combination of Maddalena and Berry. Pet. 31–57; Pet. Reply 6–22. Patent Owner argues that one of ordinary skill in the art would not have been motivated to combine Maddalena’s and Berry’s relevant teachings. PO Resp. 23–51; PO Sur-Reply 7–22.

We have reviewed the parties’ arguments and evidence of record. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 7–9, 13, 15–17, and 22 would have been obvious over the combination of Maddalena and Berry.

1. Claim 1

- a. “A method for determining a corrective lenses prescription for a person comprising, separately, for each eye of the person”*

The preamble of independent claim 1 recites “[a] method for determining a corrective lenses prescription for a person comprising, separately, for each eye of the person.” Ex. 1001, 44:63–65. Petitioner provides argument and citations showing that the preamble is taught by Maddalena. Pet. 32 (citing Ex. 1009 ¶ 67; Ex. 1004, 2:15–16, 13:36–37, 16:65–66, 17:47–48, 18:3–4, 19:41–42). Maddalena teaches “calculating at least one corrective lens prescription for the human subject.” Ex. 1004, 2:15–16. Maddalena further teaches running the test “for the left eye and the right eye individually.” *Id.* at 16:65–66; *see also id.* at 13:35–39. Patent Owner does not dispute these teachings. Accordingly, we find Maddalena

teaches the preamble of claim 1.

b. “determining a distance of the person from a computerized screen”

Independent claim 1 recites “determining a distance of the person from a computerized screen.” Ex. 1001, 44:66–67. We agree with Petitioner that Berry teaches this limitation. See Pet. 33–35 (citing Ex. 1009 ¶¶ 68–82; Ex. 1005 ¶¶ 66, 69, 70, Fig. 3C; Ex. 1001, 19:55–59, 19:11–26, 38:9–21). Berry teaches several different techniques for determining the distance of a person from the computerized screen, including (1) using body parts, such as a user’s arm length or sleeve length, to approximate the viewing distance when the device is held at arm’s length; (2) using a camera and an object of known size to detect a relative size/distance of the object, and by extension, the user’s face; and (3) using a camera, along with facial detection technology, that detects the user’s face and calculates the viewing distance based on the apparent size of the viewer’s face. Ex. 1005 ¶¶ 66, 69, 70, Fig. 3C. Patent Owner does not dispute these teachings. Accordingly, we find Berry teaches “determining a distance of the person from a computerized screen.”

c. “determining a sphere prescription for the person via the computerized screen and without the use of a refractor lens assembly”

Independent claim 1 recites “determining a sphere prescription for the person via the computerized screen and without the use of a refractor lens assembly.” Ex. 1001, 45:1–3. We agree with Petitioner that Maddalena teaches this limitation. See Pet. 38–39 (citing Ex. 1009 ¶¶ 83–84; Ex. 1004, 4:60–67, 14:21–26, 14:29–32, 18:33–44, 31:43–46). Maddalena teaches a

computer-based vision testing system that allows vision testing to be carried out without the use of lenses, and for a lens prescription to be calculated. Ex. 1004, 4:60–67, 27:24–52. Maddalena further describes estimating or calculating the spherical lens component of the prescription, based upon the test results. *Id.* at 14:22–26, 27–32, 18:52–56, 31:43–46. Patent Owner does not dispute these teachings. Accordingly, we find Maddalena teaches “determining a sphere prescription for the person via the computerized screen and without the use of a refractor lens assembly.”

d. “wherein determining the sphere prescription for the person comprises testing for the sphere prescription by: displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one input”

Independent claim 1 recites “wherein determining the sphere prescription for the person comprises testing for the sphere prescription by: displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one input.” Ex. 1001, 45:4–8. We agree with Petitioner that Maddalena teaches this limitation. See Pet. 39–45 (citing Ex. 1009 ¶¶ 85–92; Ex. 1004, 4:65–66, 14:1–2, 14:21–32, 16:17–61, 16:66–17:1, 17:11–14, 17:62–66, 21:28–61, Figs. 9, 11, 12K; Ex. 1001, Fig. 7A). Maddalena teaches various visual acuity tests that involve displaying a boxed C (or, alternatively, a boxed E or a series of randomly generated numbers) on a computerized screen, entering an input to start the test, increasing the size of the boxed C, E, or numbers from small to large, and allowing further input when, for example, the patient can see the direction of the gap in the letter C or can read aloud the sequence of numbers without

error. Ex. 1004, 14:64–18:11, 21:29–62, Figs. 9, 11 12K. The results of the tests are used to calculate a suitable lens prescription, including estimating the spherical component of the prescription. *Id.* at 14:21–32, 27:24–55. Patent Owner does not dispute these teachings.⁷ Accordingly, we find Maddalena teaches “wherein determining the sphere prescription for the person comprises testing for the sphere prescription by: displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one input.”

- e. *“using the at least one input in conjunction with the determined distance of the person from the computerized screen to calculate a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person”*

Independent claim 1 recites “using the at least one input in conjunction with the determined distance of the person from the computerized screen to calculate a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person.” Ex. 1001, 45:9–13. We agree with Petitioner that the combination of Maddalena and Berry teaches this limitation. Pet. 45–48 (citing Ex. 1009

⁷ As discussed above in Section III.A, Petitioner proposed construing the term “sphere figure.” Pet. 17–18. Although Patent Owner provided an alternate construction, for the term (PO Resp. 10–11), Patent Owner apparently does not dispute that Maddalena teaches a “sphere figure” under Petitioner’s proposed construction. See Ex. 1029, 43:5–7, 16–19. We find that under either party’s proposed construction Maddalena teaches the claimed “sphere figure.”

¶¶ 57, 93–99; Ex. 1004, 10:41–47, 12:15–17, 14:21–33, 16:31–33, 16:62–17:3, 27:24–28:7, 31:44–46; Ex. 1001, 19:2–4, 20:32–48, Fig. 7A, Fig. 7B). Maddalena teaches a relationship between visual acuity and test distance. Ex. 1004, 10:40–47, 12:15–17. To ensure accuracy, Maddalena teaches that its tests are performed at two or three distances of 40 cm, 100 cm, and/or 300 cm. *Id.*; *see also id.* at 12:5–7. As discussed *supra*, Maddalena teaches that a patient may provide inputs to the visual acuity tests at each distance, including inputs to start the test and indicate when the patient can see the direction of the gap in the letter C or can read aloud the sequence of numbers without error. *Id.* at 14:64–18:11, 21:29–62, Figs. 9, 11 12K. The results of the tests are used to calculate a suitable lens prescription, including estimating the spherical component of the prescription. *Id.* at 14:21–32, 27:24–55, 31:44–46. As discussed *supra*, Berry teaches a determined distance of the person from the computerized screen. Ex. 1005 ¶¶ 66, 69, 70. Patent Owner does not dispute this showing. Accordingly, we find Maddalena and Berry teach “using the at least one input in conjunction with the determined distance of the person from the computerized screen to calculate a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person.”

2. Rationale for Combining Maddalena and Berry

We find that Petitioner has demonstrated by a preponderance of the evidence that one of ordinary skill in the art would have found it obvious to combine Maddalena’s and Berry’s teachings so as to render claim 1 obvious.

As discussed *supra*, Petitioner relies on Berry to teach or suggest the limitation “determining a distance of the person from a computerized screen.” Pet. 33–38. Petitioner’s combination, therefore, replaces the

manual, user-based distance measurement method of Maddalena with the camera-based distance determination methods of Berry. *Id.* Relying on Dr. Brady’s testimony,⁸ Petitioner argues it would have been obvious to combine Maddalena with Berry’s methods of distance determination because a person of ordinary skill in the art would have recognized that Berry’s techniques would have improved Maddalena’s similar system in three ways – accuracy, convenience, and flexibility. *Id.* at 33–37; Pet. Reply 6. First, Petitioner contends that the combination improves accuracy because “Berry’s automated techniques [of] using cameras could have been used in order to ensure that the patient was located at the correct distance,” which “would provide greater accuracy than relying on the patient’s measurements alone.” Pet. 36 (citing Ex. 1009 ¶¶ 74–77); Pet. Reply 14–18. Second, Petitioner contends the combined system improves convenience because “Berry’s automated measurement techniques would have made Maddalena’s vision testing system easier to use” because it eliminates the need for the patient to precisely “mark out three distances.” Pet. 36 (citing Ex. 1004, 10:42; Ex. 1009 ¶ 78); Pet. Reply 7–9. Third, Petitioner contends the combined system improves flexibility because using Berry’s distance-determination methods would have permitted the use of a greater range of viewing distances. Pet. 37 (citing Ex. 1009 ¶ 79); Pet. Reply 7–9.

⁸ Patent Owner argues Dr. Brady’s testimony is flawed because Petitioner failed to instruct Dr. Brady on the legal standards of obviousness, and in particular, to caution him against the use of hindsight. PO Resp. 20–23; PO Sur-Reply 2–4. However, we agree with Petitioner that Dr. Brady is not offering an opinion on the ultimate question of obviousness, but rather is offering opinions on underlying factual issues. See Pet. Reply 24.

Therefore, Petitioner asserts “the combination of Berry and Maddalena would have merely involved use of known techniques (Berry’s distance measurement approaches) to improve similar devices (Maddalena’s computer) in the same way as Berry’s device” and was “well within the level of skill in the art” because Berry used commonplace hardware, such as tablet cameras, and software tools that could have been incorporated into Maddalena’s system with no more than routine effort. Pet. 37–38 (citing Ex. 1009 ¶¶ 73, 80–82).

Patent Owner argues, with support from Dr. Thomas, that (1) Petitioner failed to articulate a valid motivation to modify Maddalena to incorporate one of Berry’s distance determining mechanisms; and (2) a person of ordinary skill in the art would not have had a reasonable expectation of success in combining the teachings of Maddalena and Berry to meet the claim limitations. PO Resp. 24–25; PO Sur-Reply 7–22.

a. Motivation to Combine Maddalena and Berry

Patent Owner addresses each of Petitioner’s three asserted reasons why modifying Maddalena with Berry’s automated measuring techniques would improve Maddalena’s system. PO Resp. 23–48; PO Sur-Reply 7–20.

Patent Owner presents several different arguments pertaining to Berry’s accuracy. First, Patent Owner argues Maddalena already comprises an accurate measurement function, so one of ordinary skill in the art would not be motivated to replace its manual distance determination methods with automated methods that may be less accurate, given Maddalena’s emphasis on accuracy. PO Resp. 25–27; *see also* PO Sur-Reply 7–8. Patent Owner further argues Berry’s distance determination methods are “insufficiently accurate and overly complicated” as compared to Maddalena’s, and are,

therefore, less accurate. PO Resp. 25; *see also* PO Resp. 43–46; PO Sur-Reply 11–15.

Second, Patent Owner argues neither Maddalena nor Berry discloses a method for precisely calibrating the camera, and that without calibration, different cameras will arrive at different results, resulting in an unknowable, but likely substantial, amount of error. PO Resp. 28–29 (citing Ex. 2007 ¶ 123). According to Patent Owner, a person of ordinary skill in the art would not have prior experience with calibration of cameras, and in view of Maddalena’s and Berry’s lack of disclosure of calibration, such calibration would be beyond the level of skill of a person of ordinary skill, or would at least require undue experimentation. *Id.* at 29 (citing Ex. 2007 ¶ 123).

Third, Patent Owner argues Berry’s facial recognition method would introduce varying degrees of error and inaccuracy, depending on camera properties, such as resolution, and the specific points of reference and detection methods used. *Id.* at 29–31; PO Sur-Reply 13. Patent Owner argues this is further true for the low-resolution cameras that were typical for webcams in 2013. PO Resp. 30. Patent Owner also argues the facial recognition methods are subject to error based on the natural variation between the sizes of different user’s heads and faces, the orientation of the user’s head, and the distortion of the face. *Id.* at 29–31, 35–36. Patent Owner also argues that embodiments of the facial recognition method require the user to match an object with a displayed shape while standing 100 cm or 300 cm away, which may result in errors due to the user’s uncorrected vision. *Id.* at 36.

Fourth, Patent Owner argues Berry’s camera method of using an object of a known size to determine distance is subject to the same types of

camera related errors, but also “would further be highly susceptible to user error due to the slight variations in placement or orientation of the reference object near the user’s face,” as well as to errors from the user’s uncorrected vision in trying to match the object with the displayed shape. *Id.* at 32, 35–36. Patent Owner focuses on Berry’s disclosure of a quarter as the reference object, and argues that due to the small size of the quarter, potential errors would worsen as the object’s distance from the camera increases. *Id.* at 32–33; PO Sur-Reply 12. Patent Owner also argues the reflectivity in the quarter’s material would introduce additional complications. PO Resp. 32–33; PO Sur-Reply 14.

Fifth, Patent Owner argues Berry only teaches using its system at arm’s length or shorter, so therefore it is a clinically invalid system and one of ordinary skill in the art would not have modified Maddalena to use Berry’s distance determination methods as a result. PO Resp. 25, 34, 39–41; *see also* PO Sur-Reply 11.

Sixth, Patent Owner argues market considerations would dissuade one of ordinary skill in the art from modifying Maddalena with Berry. PO Resp. 37–39. Specifically, Patent Owner argues there is “substantial institutional resistance faced by remote vision testing systems.” *Id.* at 37–38. According to Patent Owner, because the accuracy of the distance is so important, Berry’s “rough approximations” of the distance that are subject to “multiple potential sources of error” would receive “hostility and criticism by practitioners in the art,” and one of ordinary skill in the art would therefore not be motivated to “integrate unnecessary, experimental features into Maddalena’s system.” *Id.* Rather, Patent Owner argues, a person of ordinary skill in the art “would have selected the most accurate, reliable,

familiar, and proven means of accomplishing its purposes—measuring off and marking set distances.” *Id.* at 38.

We agree with Petitioner that a person of ordinary skill in the art would have been motivated to combine Berry’s automated distance determination with Maddalena due to accuracy concerns. Although Patent Owner extensively argues that Berry is less accurate than Maddalena, both references discuss accuracy, and Berry even describes that its embodiments “can reduce, or even eliminate, inaccuracies that can be introduced by a patient performing aspects of a self-test.” Ex. 1005 ¶¶ 42, 40, 55; Ex. 1004, 10:45–47. We, therefore disagree with Patent Owner’s assertion that “Berry’s system is unconcerned with distance accuracy.” PO Sur-Reply 11.

The parties’ experts submit conflicting testimony regarding the accuracy of Maddalena and Berry. For example, Dr. Thomas, Patent Owner’s expert, takes the position that “Berry’s methods, no matter the distance being determined, *will* be less accurate than a measured distance, which is the gold standard against which all other techniques are assessed.” Ex. 2007 ¶ 108; Ex. 1029, 348:10–18. Dr. Thomas further provides testimony regarding the potential errors that could be introduced by Berry’s camera-based methods based on several different cameras, fields of view, and resolutions. Ex. 2007 ¶¶ 124–131. However, Dr. Thomas also testifies that Berry’s camera-based methods could be implemented with a higher quality webcam, resulting in less of a distance error. Ex. 1029, 263:23–264:10. Moreover, as Petitioner points out, Dr. Thomas does not offer any calculations to evaluate the accuracy of Maddalena’s distance determination methods. Pet. Reply 20. Petitioner’s expert, Dr. Brady, provides unrebutted testimony challenging the assumptions made in Dr. Thomas’ calculations

about Berry's accuracy. Ex. 1040 ¶¶ 22–25. However, during his deposition, Dr. Brady admits that Berry's system may result in some inaccuracies. Ex. 2009, 141:2–143:16, 147:14, 142:6–10, 144:2–5. Dr. Brady also provides testimony calculating distance errors in Maddalena's method caused by user error in measuring. Ex. 1040 ¶¶ 17–19. Dr. Brady also testifies that Maddalena's approach does not include a check to ensure the accuracy of the user's measurements, so it would be logical to use some means, such as a camera-based measurement technique, to improve Maddalena's accuracy. Ex. 1009 ¶¶ 76, 77; Ex. 1040 ¶¶ 20–21.

We find Dr. Brady's testimony more persuasive. By labeling Maddalena's manual measurement methods as a “gold standard” (Ex. 2007 ¶ 108), Patent Owner asks us to ignore the potential for user error in Maddalena, while at the same time asking us to take into consideration the potential for user error in Berry. For example, Patent Owner points to several sources of potential user error in Berry which result in less accuracy, such as user error in placing the reference object⁹ and the orientation of the user's head, but seemingly disavows any potential for user error in the user measuring out the distance in Maddalena. See PO Resp. 32, 35–36. Patent Owner argues that “[a]bsent user error, Maddalena's measurement system would be accurate, whereas each of Berry's distance determination and positioning methods is more dependent upon the user precisely following the

⁹ We are also not persuaded by Patent Owner's argument that Berry only discloses using a quarter for the reference object. Rather, the quarter was one example of an object of a known size. See Ex. 1005 ¶ 70 (“prompt the user to use an object 306 having a known size (*e.g.*, a United States quarter) to configure the viewing distance 304”) (emphasis added) (bolding omitted).

instructions, and more susceptible and sensitive to user error.” *Id.* at 45 (emphasis added); see also Ex. 2007 ¶¶ 70, 142 (explaining that *if* Maddalena’s instructions are followed, it would accurately place the person at the specified distance). In other words, with no user error, Maddalena is accurate, but Maddalena is dependent on the user properly following the instructions, having the appropriate measuring tools at hand, and properly marking out the distances. Ex. 2007 ¶ 142; see Pet. Reply 19–21. The user in Maddalena has to precisely follow the instructions in the same way the user in Berry has to precisely follow the instructions.

We acknowledge that Patent Owner also identifies potential inaccuracies in Berry’s camera based methods (including both user and systemic error) (Ex. 2007 ¶¶ 122, 151); however, we are not persuaded Berry’s methods are always less accurate than Maddalena’s, particularly since the user in Maddalena may have to move back and forth from the appropriate distance if they are performing the test without an assistant. See Ex. 1004, 11:62–66. We are persuaded by Dr. Brady’s testimony that both Berry’s and Maddalena’s techniques are susceptible to different types of error, so even though one of ordinary skill in the art might be aware of Berry’s potential for error, that person would still be motivated to combine Berry’s techniques with Maddalena in order to provide a check to ensure Maddalena’s manual user measurements do not introduce significant errors. Ex. 1040 ¶ 26; Ex. 1009 ¶ 77. As both methods may result in error, it is reasonable that a person of ordinary skill in the art would look for other methods.

With regard to Patent Owner’s arguments that calibrating the camera would be beyond the level of one of ordinary skill in the art, we agree with

Petitioner that the claims do not recite calibrating a camera and that Patent Owner is focused on enablement, rather than obviousness. *See* Pet. Reply 14, 16–17. We acknowledge substituting Berry’s camera-based methods into Maddalena will require some modification to Maddalena, but, as Dr. Brady points out, Berry teaches its camera-based techniques using common place hardware that could be incorporated into Maddalena with no more than routine effort. Pet. 37–38; Ex. 1009 ¶¶ 80, 81 (citing Ex. 1005 ¶¶ 39, 55, 70). We disagree with Patent Owner that because neither Maddalena nor Berry describe calibrating a camera, it would be beyond the level of one of ordinary skill in the art or at least require undue experimentation (PO Resp. 28–29). Both Maddalena and Berry only briefly mention calibration, and rather, leave the specifics to one of ordinary skill in the art. *E.g.*, Ex. 1004, 2:49–52, 3:57–60; Ex. 1005 ¶¶ 53, 54; *see Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986) (“a patent need not teach, and preferably omits, what is well known in the art”). This is further supported by the disclosure in the ’378 patent, which describes an embodiment calibrating the distance between the patient and the computerized screen using a credit card, and then states “any other *suitable or conventional method* of calibrating the distance between the patient and the computerized screen may be employed.” Ex. 1001, 19:11–26 (emphasis added), Fig. 6. Given these disclosures in the art, we are not persuaded that the modification is beyond the level of one of ordinary skill in the art through conventional methods. *See In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1382 (Fed. Cir. 2007) (noting that “we do not ignore the modifications that one skilled in the art would make to a device borrowed from the prior art”). We also credit Dr. Brady’s

testimony that it would have been a predictable improvement to Maddalena's system to employ the use of cameras, as webcams and integrated cameras in laptops and personal computers became more common at the time of invention of the '378 patent. Ex. 1009 ¶ 80.

We also are not persuaded that Berry is limited only to distances of arms' length or less. Ex. 2007 ¶¶ 78, 80, 149, 150. Rather, Berry teaches a number of different ways for determining the distance of the user from the screen, one of which involves asking the user for information, such as their arm length or sleeve length, which can be used to approximate the viewing distance. Ex. 1005 ¶ 65. Berry's other methods for determining distance, including the camera-based methods, are not limited to a distance of arms' length or less. *Id.* ¶¶ 67–71. We, therefore, are not persuaded that Berry teaches a clinically invalid system.

Further, we are not persuaded that market considerations would have dissuaded one of skill in the art from making the modification from manual, user driven methods of measuring distance to camera-based methods of measuring distances. Patent Owner references a letter from the American Optometric Association to the FDA complaining of Patent Owner's product, and asserts that it criticizes the use of “an *imprecise method* to estimate the distance on the screen.” PO Resp. 38 (citing Ex. 2020, 7) (bolding omitted). However, the letter actually criticizes the manual, user-based method disclosed in the '378 patent of “asking the user to enter a shoe size and stand a certain number of foot-lengths away from the screen,” not the camera-based distance determination methods. Ex. 2020, 7. Patent Owner identifies no evidence that practitioners in the art were hostile or criticized the camera-based distance determination methods, such as those in Berry.

Patent Owner also argues Maddalena was primarily concerned with accuracy, so a person of ordinary skill in the art would never risk accuracy for other potential advantages, such as convenience or ease of use. PO Resp. 46–47; PO Sur-Reply 16. Even if we agreed with Patent Owner that Berry’s camera-based methods are less accurate than Maddalena’s manual measuring method, we still are not persuaded it would dissuade one of ordinary skill in the art from making the combination. It is not necessary for a combination to be the most desirable combination described in the prior art to provide motivation for making the combination. *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014) (citing *Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 738 (Fed. Cir. 2013)) (obviousness “does not require that the motivation be the *best* option, only that it be a *suitable* option from which the prior art did not teach away”); *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004).¹⁰ We find that the potential for inaccuracies alleged by Patent Owner are not sufficient to overcome the motivation in this instance.

Moreover, the mere existence of disadvantages resulting from a modification does not refute the obviousness of the modification when the prior art indicates that the modification also offers an advantage. Trade-offs regarding features, costs, manufacturability, or the like, do not necessarily prevent the combination. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d

¹⁰ Although Patent Owner asserted at the hearing that Maddalena teaches away from the claimed invention because “Maddalena admonishes a person from making the system inaccurate” (Tr. 41), we note the claims do not recite any specified level of accuracy.

1157, 1165 (Fed. Cir. 2006) (“[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”); *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) (“The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.”). As will be discussed below, Petitioner also argues one of ordinary skill in the art would be motivated to combine Berry and Maddalena for reasons of convenience and flexibility, which we likewise find persuasive.

With regard to convenience, Patent Owner argues a person of ordinary skill in the art would not have modified Maddalena to incorporate Berry’s distance determination methods because Maddalena already had a functional, easily usable, accurate system, so there would be no reason to require additional equipment, such as a camera. PO Resp. 25, 37; PO Sur-Reply 13. Patent Owner additionally argues “there is no evidence that Maddalena was difficult to use” and “introducing Berry’s methods into Maddalena’s simple measurement system . . . would make it more difficult to use.” PO Resp. 46; PO Sur-Reply 19–20. Dr. Thomas testifies that in Berry, the user would have to measure her distance every time she moved to a new testing distance, would have to incur another, separate calibration step, and would have to position herself again for the system to calculate her position, which is not easier to use than Maddalena. Ex. 2007 ¶ 157.

We disagree. We do not find that for a modified method to be easier to use that the original method must necessarily be difficult to use. Further,

we do not see a discernible difference in ease or difficulty of use for a user to measure out three distances themselves at the beginning of a vision test versus moving to three different locations during the vision test so the camera may measure the distance. Dr. Brady's testimony that webcams were common in personal computers and laptops by March 2013 is unrebutted. Ex. 1009 ¶ 79. We credit, and are persuaded by, Dr. Brady's testimony that for some users, camera-based methods are easier to use for those who do not have ready access to traditional measuring tools, such as a ruler or measuring tape, particularly since the users will already be using the computer for the vision test. *Id.* ¶ 78.

With regard to flexibility, Patent Owner argues the three distances in Maddalena are not arbitrary distances, so changing those distances would require re-engineering Maddalena's system, and the entire system would have to be clinically re-validated for each additional testing distance. PO Resp. 47–48.

We disagree. We acknowledge that the distances in Maddalena are not arbitrary in that Maddalena seeks to test at two or three predetermined distances to ensure accuracy. Ex. 1004, 4:41–47, 16:62–66. However, we are persuaded by, and credit, Dr. Brady's unrebutted testimony that changing the distances in Maddalena would be straightforward and would involve simple linear scaling of the figure size and testing distance. Ex. 1040 ¶ 14. Dr. Brady also testifies, unrebutted, that in his opinion, Maddalena's disclosure suggests using vector graphics, rather than a pre-set library of bitmaps, that would work across all screen sizes and resolutions. *Id.* ¶ 15.

Thus, for the foregoing reasons, we find Petitioner has articulated sufficient reasoning, with rational underpinning, for the proposed

modifications to combine Maddalena and Berry. *See KSR*, 550 U.S. at 417–418.

b. Reasonable Expectation of Success

Patent Owner argues a person of ordinary skill in the art “would not have had a reasonable expectation of success in obtaining the claimed limitations due to the incompatibility of [Maddalena’s] teachings with the teachings of Berry, the inherent and evident limitations and drawbacks of each of Berry’s distance methods versus Maddalena’s, and the extensive analysis and testing that such modification would require to confirm the modified system operates with sufficient accuracy.” PO Resp. 24–25. Specifically, Patent Owner argues “[i]n view of Berry’s clear clinical shortcomings, a [person of ordinary skill in the art] would not have been confident that modifying Maddalena based on Berry’s teachings would produce a system capable of determining corrective lens prescriptions.” *Id.* at 48–49; *see also* Ex. 2007 ¶ 141; PO Sur-Reply 8, 21–22. Patent Owner argues incorporating the distance mechanisms of Berry with Maddalena “would have required substantial modification of Maddalena’s system” and “would likely result in an inoperable system.” PO Resp. 49 (citing Ex. 2007 ¶ 106). Patent Owner also makes similar arguments as discussed above regarding skepticism and hostility in the industry. *Id.* at 49–51.

We disagree with Patent Owner’s arguments. In order to establish a reasonable expectation of success, the challenger must show “a reasonable expectation of achieving what is *claimed* in the patent-at-issue.” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016) (emphasis added). We are persuaded by Dr. Brady’s testimony that Berry teaches image-based software tools were available to provide the

distance calculations described, and “a person skilled in the art would have had a reasonable expectation of success in combining Brady’s distance-determination methods with Maddalena’s vision testing system because it is straightforward mathematics to calculate relative distances using an object of known size.” Ex. 1009 ¶¶ 81, 82. Moreover, contrary to Patent Owner’s arguments, the claims do not recite any required level of accuracy. Patent Owner’s additional arguments as to the reasonable expectation of success are primarily directed to the accuracy of Berry, which we do not find persuasive for the same reasons addressed above. See Section III.E.2. Moreover, both Maddalena and Berry are directed to determining a corrective lens prescription, so we do not find persuasive Patent Owner’s arguments that Berry is incapable of generating reliable and accurate prescriptions. See Ex. 2007 ¶ 85; Ex. 1004, 2:15–17; Ex. 1005 ¶ 12.

In view of the foregoing, Petitioner has shown claim 1 to be unpatentable under 35 U.S.C. § 103(a), by a preponderance of the evidence, over Maddalena and Berry.

3. Claims 2, 7, 8, 9, 13, 15–17, and 22

Having considered the evidence before us, both for and against obviousness, we find that Petitioner has demonstrated by a preponderance of the evidence that claims 2, 7, 8, 9, 13, 15–17, and 22 would have been obvious to a person of ordinary skill in the art based on the combined teachings of Maddalena and Berry.

Claim 2 depends from claim 1 and further recites

wherein determining the sphere prescription for the person via the computerized screen further comprises:

- (i) presenting a first sphere figure to the person via the

computerized screen, wherein the first sphere figure is too small to be clearly seen by the person, and

(ii) enabling the person to make at least one input to increase the size of the first sphere figure until it can just barely be made out by the person, wherein the at least one input corresponds to a first sphere measurement.

Ex. 1001, 45:14–25. We agree with Petitioner that Maddalena teaches these limitations. Pet. 48–50 (citing Ex. 1009 ¶¶ 100–102; Ex. 1004, 16:34–55, 30:47–54). Maddalena teaches, in its visual acuity tests, starting the test and increasing the size of a boxed C figure displayed on the screen until the user can see the direction of the gap in the letter C, at which point the user or an assistant stops the growth of the boxed C object via input. Ex. 1004, 16:34–55, 30:47–54. Dr. Brady testified that such input corresponds to the sphere measurement that is used to determine the sphere prescription. Ex. 1009 ¶ 102. Patent Owner does not dispute these teachings. Accordingly we find that Maddalena teaches the limitations in dependent claim 2, and we conclude that Petitioner has demonstrated by a preponderance of the evidence that claim 2 would have been obvious over Maddalena and Berry.

Claim 7 depends from claim 1 and further recites “wherein the method is provided via an internet.” Ex. 1001, 45:48–49. We agree with Petitioner that Maddalena teaches this limitation. Pet. 50–51 (citing Ex. 1009 ¶ 103; Ex. 1004, 5:2–8, 6:48–52). Maddalena teaches that the remote tests may be performed on a computer that “is typically connected to a network such as the World Wide Web (WWW).” Ex. 1004, 5:2–8; *see also* Abstr. (describing that the tests “may be run remotely, for example, over the Internet”). Maddalena describes that the diagnostic data from the

patient passes from the WWW through a public telecommunications network to the host computer, where the data is evaluated. *Id.* at 6:48–54. Patent Owner does not dispute these teachings. Accordingly we find that Maddalena teaches the limitations in dependent claim 7, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 7 would have been obvious over Maddalena and Berry.

Claim 8 depends from claim 1 and further recites “wherein the method further comprises sending the determined sphere prescription to at least one doctor for review and approval.” Ex. 1001, 45:53–56. We agree with Petitioner that Maddalena teaches this limitation. Pet. at 51–52 (citing Ex. 1009 ¶¶ 105–107; Ex. 1004, 6:36–44, 13:55–56, 27:30–34, 28:51–54, 28:58–66). Maddalena describes the “results of the individual tests will be encrypted and sent to the central optometric laboratory for examination and analysis by a legally registered optometrist.” Ex. 1004, 13:52–56; *see also id.* at 27:27–34. Patent Owner does not dispute this teaching. Accordingly we find that Maddalena teaches the limitations in dependent claim 8, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 8 would have been obvious over Maddalena and Berry.

Claim 9 depends from claim 1 and further recites “wherein the corrective lenses prescription for the person further comprises at least one of a previously-determined axis prescription and a previously determined cylinder prescription.” We agree with Petitioner that Maddalena teaches this limitation. Pet. 52–54 (citing Ex. 1004, 14:33–46, 27:35–28:10, 28:51–66, Fig. 7; Ex. 1009 ¶¶ 114–115). Maddalena teaches that a first astigmatism test 514 in the preliminary test section gives “a qualitative estimation of the angle of the axis and a qualitative estimate of the degree of the problems

associated with the non-lens components of the optical system,” a second astigmatism test 526 in the static test section gives “an accurate measurement of both the angle of the axis and the cylindrical lens power needed to correct any problems due to the astigmatism,” and a third, alternative, astigmatism test 527 “obtain[s] an accurate measurement of the angle of the astigmatic axis.” Ex. 1004, 14:33–46. The diagnostic assistant analyzes, *inter alia*, acuity data, spherical data, and astigmatism data, and will then “produce a lens recommendation.” *Id.* at 28:1–10, 27:45–48, Fig. 7. Patent Owner does not dispute these teachings. Accordingly, we agree with Petitioner that the analysis of the astigmatism data prior to producing a lens recommendation teaches or suggests the limitations in claim 9, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 9 would have been obvious over Maddalena and Berry.

Claim 22 depends from claim 1 and recites “wherein the distance of the person from the computerized screen is determined using, in part, a camera.” Ex. 1001, 47:11–13. We agree with Petitioner that Berry teaches this limitation. Pet. at 56–57 (citing Ex. 1005 ¶¶ 69–70; Ex. 1009 ¶¶ 121–122). As discussed above, Berry teaches (1) using a camera and an object of known size to detect a relative size/distance of the object, and by extension, the user’s face; and (2) using the camera, along with facial detection technology, that detects the user’s face and calculates the viewing distance based on the apparent size of the viewer’s face. Ex. 1005 ¶¶ 69–70. Patent Owner does not dispute these teachings. Accordingly, we find that Berry teaches the limitations in dependent claim 22, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 22 would have been obvious over Maddalena and Berry.

Claim 13 is independent, and is similar to independent claim 1 other than that it recites “at least one multiple choice” input and “determine a sphere measurement” as opposed to “calculate a sphere measurement.” Ex. 1001, 46:1–19. We agree with Petitioner that Maddalena teaches “at least one multiple choice input,” and Maddalena and Berry combined teach the remaining limitations as set forth in claim 1. Pet. 54–55 (citing Ex. 1009 ¶ 117; Ex. 1004, 16:40–48, Fig. 9). Specifically, Maddalena teaches clicking the mouse over the direction arrow icon 920 when the patient can see the direction of the gap in the letter C. Ex. 1004, 16:45–47, Fig. 9. We agree with Petitioner that direction arrow icon 920, as depicted in Figure 9, is a multiple-choice input, as it allows for four different choices. See Pet. 55. Patent Owner does not dispute these teachings. The remaining limitations are discussed above with respect to independent claim 1. We do not see, and Patent Owner has not argued, that there is a meaningful difference between “determining” the sphere measurement and “calculating” the sphere measurement, as recited in independent claims 1 and 13, respectively. Accordingly, we conclude that Petitioner has proven by a preponderance of the evidence that claim 13 would have been obvious over Maddalena and Berry.

Claims 15–17 depend from claim 13 and are similar to dependent claims 7–9, respectively. Petitioner presents the same arguments for claims 15–17 as it does for claims 7–9. *Id.* at 55–56. Patent Owner does not dispute these teachings. For the same reasons as discussed above for claims 7–9, we agree with Petitioner that Maddalena teaches the limitations in dependent claims 15–17, and we conclude that Petitioner has proven by a preponderance of the evidence that claims 15–17 would have been obvious

over Maddalena and Berry.

F. Grounds Based on Maddalena, Berry, and Yoo

Petitioner contends claims 11, 12, 19, and 20 would have been obvious over the combination of Maddalena, Berry, and Yoo, citing the testimony of Dr. Brady as support. Pet. 57–63 (citing Ex. 1009); Pet. Reply 11–24. Patent Owner argues that one of ordinary skill in the art would not have been motivated to combine Maddalena’s, Berry’s, and Yoo’s relevant teachings. PO Resp. 51–57; PO Sur-Reply 22–25.

We have reviewed the parties’ arguments and evidence of record. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 11, 12, 19, and 20 would have been obvious over the combination of Maddalena, Berry, and Yoo.

1. Claims 11, 12, 19, and 20

Claim 11 depends from claim 1, and claim 12 depends from claim 11. Ex. 1001, 45:62–67. Claim 11 recites “[t]he method according to claim 1, wherein the computerized screen comprises two or more computerized screens.” *Id.* at 45:62–64. Claim 12 recites “[t]he method according to claim 11, wherein at least one of the computerized screens is enabled to operate as a remote for at least one of the other computerized screens.” *Id.* at 45:65–67. Claim 19 is similar to claim 11 except it depends from claim 13, and claim 20 is similar to claim 12 except it depends from claim 19. *Id.* at 46:39–44.

We agree with Petitioner that Yoo teaches the limitations in claims 11, 12, 19, and 20. Pet. 57–63 (citing Ex. 1006 ¶¶ 78, 94, 105, 132, Fig. 1A, Fig. 10D, Fig. 10E; Ex. 1009 ¶¶ 124–133; Ex. 1001, 12:23–30). Yoo teaches entering a response using first input device 150 based upon visual

indicia displayed on first display device 130, where the first input device is a multi-touch device, such as an iPod touch. See Ex. 1006 ¶¶ 94, 132, Fig. 10D, 10E. Patent Owner does not dispute these teachings. Accordingly, we find that Yoo teaches the limitations in dependent claims 11, 12, 19, and 20.

2. Rationale for Combining Maddalena, Barry, and Yoo

We find that Petitioner has demonstrated by a preponderance of the evidence that one of ordinary skill in the art would have found it obvious to combine Maddalena's, Barry's, and Yoo's teachings so as to render claims 11, 12, 19, and 20 obvious.

Petitioner relies on the combination of Maddalena and Barry, as discussed above, with the addition of the Yoo reference. Pet. 57. Petitioner argues that a skilled artisan would have had reason to modify Maddalena's teachings with Yoo for convenience. *Id.* Specifically, Petitioner asserts a person of ordinary skill in the art would recognize the disadvantage of Maddalena's approach of allowing a person to take the test alone by using modifications such as a "time delay interval" that "allows the patient time to get into the test position." *Id.* at 57–58 (Ex. 1004, 16:34–65). Therefore, Petitioner asserts a person of ordinary skill in the art would recognize "the need for a more convenient method of providing inputs to the vision testing system when the patient is unable to reach the computer." *Id.* at 58 (citing Ex. 1009 ¶ 124). Petitioner asserts "[o]ne common input method that would have met this need was a wireless input device, such as a wireless keyboard, mouse or remote [as disclosed in Yoo.]" *Id.* (citing Ex. 1009 ¶¶ 124–125).

Relying on Dr. Brady's Declaration, Petitioner contends a person of ordinary skill in the art "would have had reason to combine Yoo's multi-

touch input device with Maddalena’s visual acuity tests because Maddalena teaches the need for an input mechanism that can be used beyond an arm’s length from the display screen” and a person of ordinary skill in the art “would have recognized that a mobile device, such as a smartphone or iPod, meets this need and thus can provide a convenient, accurate input methodology that improves the commercial viability of Maddalena’s system.” *Id.* at 59 (citing Ex. 1009 ¶¶ 124–126). Petitioner further contends a person of ordinary skill in the art “would have had reason to improve Maddalena’s visual acuity test with the input mechanism from Yoo because it would improve similar systems (visual acuity tests using Landolt C figures on a computerized screen) in the same way (enabling handheld touchscreen input of the opening direction of the Landolt C figure).” *Id.* (citing Ex. 1009 ¶ 129). Petitioner further contends a person of ordinary skill in the art would have recognized that the results of the combination were predictable because using mobile devices as remotes for computers was well known in consumer electronics, as shown in Yoo. *Id.* at 60 (citing Ex. 1009 ¶¶ 125, 128–129).

In response, Patent Owner argues that (1) Yoo is not analogous art; (2) Petitioner has not provided adequate reasoning to combine Yoo with Maddalena and Berry; and (3) the Chou reference constitutes objective evidence of non-obviousness as to the combination. PO Resp. 51–57.

a. Analogous Art

With support from Dr. Thomas’ testimony, Patent Owner argues Yoo is not analogous art because Yoo is not in the medical or diagnostic ophthalmic field. PO Resp. 52 (citing Ex. 2007 ¶¶ 166–167). According to Patent Owner, “Yoo relates to testing and training vision for enhancing the performance of a test-taker, not diagnosing a test-taker’s refractive error,”

unlike Maddalena and Berry, which are directed towards determining a contact lens prescription. *Id.* (citing Ex. 2007 ¶ 167; Ex. 2009, 154:2–7).

We disagree. “The Supreme Court’s decision in *KSR* . . . directs us to construe the scope of analogous art broadly.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010). Prior art is analogous if it is (1) from the same field of endeavor, regardless of the problem addressed, or (2) if the reference is reasonably pertinent to the problem with which the inventor is involved. *In re Bigio*, 381 F.3d 1320, 1325 (Fed.Cir.2004). “A reference is reasonably pertinent if . . . it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem.” *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). “If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection.” *Id.*

We find Yoo is analogous art to the ’378 patent under either prong. As discussed *supra*, the ’378 patent is generally directed to a system that allows the user to take a vision test remotely and without the use of any specialized equipment. Ex. 1001, 3:7–15. Similarly, Yoo is generally directed to a vision testing and/or training kiosk. Ex. 1006, Abstr. We disagree with Patent Owner that Yoo is not in the medical or diagnostic ophthalmic field. See Ex. 1027 ¶¶ 166–167. Although Yoo does not teach determining refractive error or a lens prescription, we are persuaded by Dr. Brady’s testimony that remote visual acuity exams, such as that in Yoo, are necessary aspects of remote lensless refraction systems, like those in Maddalena and the ’378 patent. Ex. 1040 ¶¶ 33, 35, 38. Moreover, we also agree with Petitioner that Yoo is reasonably pertinent to the problem of the

'378 patent, which Patent Owner stated was “developing a system that allows the user to take a vision test remotely and without the use of any specialized equipment.” Pet. Reply 23 (citing PO Response 8); *see also* Ex. 1040 ¶ 34. For example, Yoo’s Background of the Invention describes various difficulties and limitations with vision testing in non-clinical settings. Ex. 1006 ¶ 4. Yoo, therefore, describes “a unified system and method for testing/and or training the visual abilities . . . of an individual” where the equipment is combined into a compact station or kiosk, thereby reducing the number of equipment changes required. *Id.* ¶ 5.

b. Motivation to Combine Maddalena, Berry, and Yoo

With regard to the combination of references, Patent Owner argues Maddalena discloses using standard computer peripherals, such as a keyboard or mouse with a long cable, or a microphone or joystick, so a person of ordinary skill in the art would not have looked, or needed to look for a different solution. PO Resp. 53. Patent Owner also argues a person of ordinary skill in the art “would not possess the technical capability of how to program multiple interconnected devices, nor the technical ingenuity to think to look for such a solution.” *Id.* at 53–54 (citing Ex. 2007 ¶ 169). Patent Owner asserts that Dr. Brady does not show that a person of ordinary skill in the art “would have been motivated to use such a system, had the technical qualification to build such a system, or . . . would have even thought such a solution was possible.” *Id.* at 54 (citing Ex. 1009 ¶¶ 124–125). Rather, Patent Owner argues that a person of ordinary skill in the art would be “far more inclined to use one of the other known systems for providing inputs to a computerized device.” *Id.* at 55. Finally, Patent Owner argues that market factors in 2013 argue against the combination

because a person of ordinary skill in the art “would not have been motivated to cut out a significant swath of potential consumers by requiring the use of a smartphone.” *Id.* at 56.

We disagree. As Dr. Brady points out, Maddalena recognizes the difficulties of a user attempting to perform its vision test alone, and allows for a “time delay” so that the user can get into place. Ex. 1040 ¶ 36 (citing Ex. 1004, 16:49–55); Ex. 1009 ¶ 124. We are persuaded by Dr. Brady’s testimony that Yoo offers a more convenient solution. Ex. 1040 ¶ 36. Although Maddalena offers alternatives, we further find persuasive Dr. Brady’s testimony that one of skill in the art would be motivated to incorporate a smartphone as a remote, which was known in ophthalmic fields, as taught by Yoo. Ex. 1009 ¶¶ 125, 129. We also find persuasive Dr. Brady’s testimony that ownership of smartphones was expected to grow, so it would not necessarily cut out a significant swath of potential consumers. Ex. 1040 ¶ 37. Moreover, as with our discussion above with Maddalena and Berry, given the disclosures in the prior art, including Yoo, we are not persuaded that the modification is beyond the skill of one of skill in the art.

c. Objective Indicia of Non-obviousness

Patent Owner also asserts that the Chou reference (asserted in grounds based on Maddalena, Berry, and Chou) constitutes objective indicia of non-obviousness of the grounds based on Maddalena, Berry, and Yoo because “Chou failed to conceive of distance determination or using multiple screens where one functioned as a remote for the other” and instead used a countdown mechanism. PO Resp. 57. Therefore, because Chou used a countdown mechanism rather than using multiple screens where one functioned as a remote, Patent Owner argues that such a combination was

“not obvious in 2012 to even eminently qualified practitioners in the field attempting to solve exactly the same problem.” *Id.* We disagree with Patent Owner’s argument that Chou constitutes objective indicia of non-obviousness. The analysis is whether the combination would have been obvious to the hypothetical person of ordinary skill in the art, not whether it was obvious to the Chou inventors personally. *See Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1364 (Fed. Cir. 2001). We agree with Dr. Brady that one of ordinary skill in the art would have recognized that Yoo’s mobile device input method would meet Maddalena’s need for remote input. Ex. 1009 ¶¶ 128–130.

Thus, for the foregoing reasons, we find Petitioner has articulated sufficient reasoning, with rational underpinning, to combine Maddalena, Berry, and Yoo. *See KSR*, 550 U.S. at 417–418.

In view of the foregoing, Petitioner has shown claims 11, 12, 19, and 20 to be unpatentable under 35 U.S.C. § 103(a), by a preponderance of the evidence, over Maddalena, Berry, and Yoo.

G. Grounds Based on Maddalena, Berry, and Chou

Petitioner contends claims 3–6, 14, and 21 would have been obvious over the combination of Maddalena, Berry, and Chou, citing the testimony of Dr. Brady as support. Pet. 63–72 (citing Ex. 1009). Patent Owner does not dispute this showing.

We have reviewed the parties’ arguments and evidence of record. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 3–6, 14, and 21 would have been

obvious over the combination of Maddalena, Berry, and Chou.

1. Claim 3

Claim 3 depends from claim 2 and recites “(iii) presenting a second figure to the person via the computerized screen, wherein the second figure is large enough to be clearly seen by the person,” and “(iv) enabling the person to make at least one input to decrease the size of the second figure just until it can no longer be made out by the person, wherein the at least one input corresponds to a second sphere measurement.” Ex. 1001, 45:26–35. We agree with Petitioner that Maddalena, Berry, and Chou teach these limitations. Pet. 63–66 (citing Ex. 1009 ¶¶ 136–141; Ex. 1007 ¶¶ 86–93; Ex. 1004, 16:43–44, 16:62–17:1). Both Maddalena and Chou teach repeated tests are preferred. Ex. 1004, 16:65–17:1; Ex. 1007 ¶¶ 86, 92. In contrast to Maddalena’s increasing size approach, Chou teaches a decreasing size approach, where if a user correctly identifies a 20/40 letter, “the program will provide them with progressively smaller letters from 20/30, to 20/20, to 20/15.” Ex. 1007 ¶ 92; *see also id.* ¶ 93; Ex. 1004, 16:34–48. Patent Owner does not dispute these teachings. Accordingly we find that Maddalena, Berry, and Chou teaches the limitations in dependent claim 3.

2. Rationale for Combining Maddalena, Berry, and Chou

We find that Petitioner has demonstrated by a preponderance of the evidence that one of ordinary skill in the art would have found it obvious to combine Maddalena, Berry, and Choo rendering claim 3 obvious.

Petitioner relies on the combination of Maddalena and Berry, as set forth above, with the addition of the Chou reference. Pet. 63. Petitioner contends a person of ordinary skill in the art “would have been motivated to combine the vision testing system of Maddalena with the decreasing-size

approach described in Chou in order to speed up the repeat tests that Maddalena teaches are needed.” *Id.* at 65 (citing Ex. 1009 ¶¶ 139–140). Petitioner contends while Maddalena’s starting its visual acuity tests at a size of 2 mm might be useful for a first visual acuity test due to a lack of visual acuity data, “it would unnecessarily waste time on the repeat tests to start with the same small-sized letter for a patient who can only see a much larger character,” so, therefore, it would be preferable to replace Maddalena’s repeat tests with Chou’s decreasing size approach to enable quicker testing. *Id.* at 66 (citing Ex. 1009 ¶ 140; Ex. 1004, 16:43–44). Petitioner contends “such a combination would be obvious as the combination of prior art elements according to known methods to yield a predictable result: on repeat tests, starting with an recognizable size Landolt C and decreasing the size until the patient can no longer identify the orientation.” *Id.* (citing Ex. 1009 ¶ 141). Patent Owner does not dispute Petitioner’s arguments.

We find Petitioner has articulated sufficient reasoning, with rational underpinning, to support the legal conclusion that the combination of Maddalena, Berry, and Chou would have been obvious to one of skill in the art. *See KSR*, 550 U.S. at 417–418. We further credit Dr. Brady’s testimony. *Id.* at 65–66 (citing Ex. 1009).

In view of the foregoing, Petitioner has shown claim 3 to be unpatentable under 35 U.S.C. § 103(a), by a preponderance of the evidence, over Maddalena, Berry, and Chou.

3. Claims 4–6, 14, and 21

Claim 4 depends from claim 3, claims 5 and 6 depend from claim 4, and claim 14 depends from claim 13. Ex. 1001, 45:36–47, 46:20–24. Claim 21 is independent and recites limitations similar to those in independent

claim 1 and dependent claims 2–4. *Id.* at 46:45–47:10.

Claim 4 recites “wherein a final sphere measurement is based, at least in part, on the first sphere measurement and the second sphere measurement.” Ex. 1001, 45:36–38. We agree with Petitioner that Maddalena teaches the disputed limitations in claim 4. Pet. 66–67 (citing Ex. 1004, 16:66–17:1; Ex. 1009 ¶ 142). Maddalena teaches that the test is performed at two or three distances, and is repeated four times for each eye. Ex. 1004, 16:62–17:1. As discussed above, the results of the tests are analyzed in order to formulate the corrective lens prescription. *Id.* at 27:24–34. Moreover, Dr. Brady testifies that the “average object size across all four tests would correspond to a final sphere measurement based on a first sphere measurement from Maddalena’s growing-object test and a second sphere measurement from Chou’s decreasing-object test, along with two additional sphere measurements using Chou’s decreasing-object approach.” Ex. 1009 ¶ 142. Patent Owner does not dispute these teachings. Accordingly, we find that Maddalena teaches the limitations in dependent claim 4, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 4 would have been obvious over Maddalena, Berry, and Chou.

Claim 5 recites “wherein at least one of a size, position, symbol type, and color of at least one of the first sphere figure and the second sphere figure is determined based on received information about at least one of a prior prescription of the person and demographic of the person.” Ex. 1001, 45:39–44. We agree with Petitioner that Maddalena and Chou teach the limitations in claim 5. Pet. at 67–69 (citing Ex. 1004, 13:60–67, 14:3–20, 16:30–33, 17:54–55, 18:8–11; Ex. 1009 ¶¶ 144–147; Ex. 1007 ¶ 89).

Maddalena describes collecting patient history, including age, medical condition, and vision problems as one of three qualitative tests to determine which are the best quantitative tests to run. Ex. 1004, 13:60–67. Maddalena teaches adjusting the test to be performed based upon this information—including whether “there was a large or small refractive error” or the age of the patient—to provide optimal results for each patient. *See id.* at 14:3–10. Dr. Brady testified that one of ordinary skill in the art would have understood that obtaining the patient’s prior prescription is a routine part of taking a medical history, including whether the prior prescription indicates nearsightedness or farsightedness. Ex. 1009 ¶¶ 144–145. Maddalena also teaches using different color backgrounds for the sphere figure to identify farsightedness or nearsightedness. Ex. 1004, 17:53–55, 18:8–11. In addition, Maddalena teaches using either a Landoldt C or a Landoldt E, and Chou teaches that the Landolt C is preferred for patients with astigmatism, thereby teaching a “symbol type” determined based upon the prior prescription of the person. *Id.* at 16:30–33; Ex. 1007 ¶ 89. Patent Owner does not dispute these teachings. Accordingly we find that Maddalena teaches the limitations in dependent claim 5, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 5 would have been obvious over Maddalena, Berry, and Chou.

Claim 6 recites the method of claim 4 “wherein at least one of steps (i) and (ii), or steps (iii) and (iv) are repeated at least once.” Ex. 1001, 45:45–47. Steps (i) and (ii) are recited in claim 2, and steps (iii) and (iv) are recited in claim 3. Ex. 1001, 45:15–35. We agree with Petitioner that Maddalena, teaches the limitations in claim 6. Pet. at 69–70 (citing Ex. 1004, 16:42–48, 16:66–17:1; Ex. 1009 ¶ 148). As discussed above, Maddalena teaches that

the test is performed at two or three distances, and is repeated four times for each eye. Ex. 1004, 16:62–17:1. Patent Owner does not dispute these teachings. Moreover, as discussed above with respect to claim 3, Maddalena, as combined with Chou, teaches decreasing the size of the sphere figure. We find that Maddalena teaches the limitations in dependent claim 6, and we conclude that Petitioner has proven by a preponderance of the evidence that claim 6 would have been obvious over Maddalena, Berry, and Chou.

For the remaining claims, we agree with Petitioner that Maddalena teaches the limitations in claim 14 for the same reasons as set forth in claims 5 and 13. Pet. 70. We also agree with Petitioner that Maddalena, Berry, and Chou teach the limitations in claim 21 for the same reasons as set forth for claims 1–4. Pet. at 70–72 (citing Ex. 1004, 2:34–40, 2:43–49; Ex. 1009 ¶¶ 150–151). Patent Owner does not dispute these teachings.

In view of the foregoing, Petitioner has shown claims 4–6, 14, and 21 to be unpatentable under 35 U.S.C. § 103(a), by a preponderance of the evidence, over Maddalena, Berry, and Chou.

H. Conclusion

For the foregoing reasons, we determine Petitioner has demonstrated by preponderance of the evidence that claims 1–9, 11–17, and 19–22 are unpatentable.

IV. CONTINGENT MOTION TO AMEND

As discussed above, Petitioner has demonstrated by a preponderance of the evidence that claims 1–9, 11–17, and 19–22 are unpatentable. We, therefore, consider Patent Owner’s Contingent Motion to Amend, which

seeks to replace claims 1–22 with proposed substitute claims 23–37. Mot. Amend 1, Claims App’x 0–8.¹¹ Patent Owner asserts that each of the proposed substitute claims is fully supported by the original disclosure of U.S. Patent App. No. 14/994,983, from which the ’378 patent issued, and also supported by the earliest provisional applications, U.S. Provisional Pat. App. Ser. No. 611/777,481 (“the ’481 application); U.S. Provisional Pat. App. Ser. No. 61/913,774; or U.S. Patent App. No. 14/195,583. Mot. Amend 2–15; Exs. 1002, 1003, 2024, 2008.

Below is a table showing the proposed substitute claims and replaced claims:

Original Claim	Substitute Claim
1	23
2	Cancelled
3	Cancelled
4	Cancelled
5	Cancelled
6	Cancelled
7	26
8	27
9	28
10	29
11	24

¹¹ Patent Owner’s Claims Appendix has two page 1s. We refer to the first page of the Claims Appendix as page 0.

12	25
13	30
14	Cancelled
15	33 ¹²
16	34 ¹³
17	35 ¹⁴
18	36 ¹⁵
19	31
20	32
21	37
22	Cancelled

Mot. Amend Claims App'x 0–1. Proposed substitute claim 23, reproduced below with annotations showing amendments, is illustrative:

23. A method for determining a corrective lenses prescription for a person using a first electronic device having a computerized screen and a second electronic device, the method comprising, [~~separately, for each eye of the person:~~]

guiding the person to a desired distance away from the computerized screen by: first, determining, using a camera, a distance

¹² Patent Owner's Claims Appendix indicates claim 31, but it appears 33 is the correct substitute claim.

¹³ Patent Owner's Claims Appendix indicates claim 32, but it appears 34 is the correct substitute claim.

¹⁴ Patent Owner's Claims Appendix indicates claim 33, but it appears 35 is the correct substitute claim.

¹⁵ Patent Owner's Claims Appendix indicates claim 34, but it appears 36 is the correct substitute claim.

of the person from [a] the computerized screen, second, providing instructions to the person based on the determined distance to cause the person to move towards the desired distance, and third, determining, using a camera, a distance of the person from the computerized screen; and separately, for each eye of the person:

determining a sphere prescription for the person via the computerized screen and without the use of a refractor lens assembly,

wherein determining the sphere prescription for the person comprises testing for the sphere prescription by: displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one input, and using the at least one input in conjunction with the determined distance of the person from the computerized screen to calculate a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person[-];

wherein the second electronic device is a standalone and hand-portable electronic device used to receive inputs from the person; and

wherein the first electronic device and the second electronic device each separately comprise a processor and computer readable memory.

Mot. Amend Claims App'x 1–2.

Petitioner asserts the following grounds of unpatentability against the proposed substitute claims, as summarized in the table below.

Ground	Claims Challenged	Basis	References (if applicable)
1	23–37	§ 112(b)	N/A
2	23, 24, 26, 27, 30, 31, 33, 34	§ 103(a)	Maddalena, Yoo, and Bartlett ¹⁶

¹⁶ US 2012/0050685 A1, published Mar. 1, 2012, Ex. 1027.

3	37	§ 103(a)	Maddalena, Bartlett, Yoo, and Chou
4	25, 28, 32, 35	§ 112(b)	N/A
5	25, 28, 32, 35	§ 103(a)	Maddalena, Bartlett, Yoo, and Young ¹⁷
6	23–28, 30–35, 37	§ 103(a)	Maddalena, Bartlett, Yoo, Chou, Young, and Berry

Opp. Amend 3–25. Petitioner also argues the claims are not entitled to the March 12, 2013, priority date based on the '481 application. Opp. Amend 1–3. In addition to the references listed above, Petitioner relies on the Declarations of Christopher J. Brady MD, MHS (Ex. 1009, Ex. 1040).

In an *inter partes* review, amended claims are not added to a patent as of right but, rather, must be proposed as a part of a motion to amend. 35 U.S.C. § 316(d); *Lectrosonics, Inc. v. Zaxcom, Inc.*, Case IPR2018-01129, slip op. at 2 (PTAB Feb. 25, 2019) (Paper 15) (precedential). We must assess the patentability of the proposed substitute claims “without placing the burden of persuasion on the patent owner.” *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1328 (Fed. Cir. 2017) (en banc). Rather, “[t]he petitioner bears the burden of proving that proposed amended claims are unpatentable.” *Sirona Dental Sys. GmbH v. Institut Straumann AG*, 892 F.3d 1349, 1357 (Fed. Cir. 2018); *see also Lectrosonics*, Paper 15, at 4.

For the reasons explained below, considering the record before us, we determine that Petitioner has shown by a preponderance of the evidence that proposed, substitute claims 23–37 are unpatentable under § 112(b) and

¹⁷ US 8,887,052 B2, filed Dec. 30, 2009, issued Nov. 11, 2004, Ex. 1043.

claims 23–28, 30–35, and 37 are unpatentable under § 103(a). Because we find Petitioner has shown unpatentability of the proposed substitute claims under Grounds 1, 2, 3, 5, and 6, we do not address Ground 4. Further, we do not address Petitioner’s priority date argument, as it only affects a tertiary reference not relied upon. See Opp. Amend 3.

A. Ground I - Substitute Claims 23–37: Indefiniteness

Petitioner argues the proposed claims are indefinite “because there is no reasonable certainty about the antecedent basis for ‘the determined distance of the person from the computerized screen,’” which is a limitation that appears in all of substitute proposed independent claims 23, 30, and 37. Opp. Amend 3. Petitioner argues the claims do not make clear which of the two determined distances is “*the* determined distance” that is used in the calculation of the sphere measurement. Opp. Amend 3; Pet. Sur-Reply 3 (citing Ex. 1040 ¶ 43). Petitioner argues under both the *Nautilus* and *Packard* standards the claims are indefinite because there are two possible antecedent bases for the subsequent claim term. Opp. Amend 3. Petitioner argues “nothing in the claims ensures that the second determined distance is close to the desired distance . . . [so] either of the determined distances could be more appropriate than the other depending on the circumstances.” Opp. Amend 6; Pet. Sur-Reply 4 (citing Ex. 1040 ¶¶ 46–49).

Patent Owner responds that Petitioner’s “manufactured ambiguity is absurd, contrary to the specification, and disregards a [person of ordinary skill in the art’s] knowledge.” PO Reply Amend 2. Patent Owner argues that a person of ordinary skill in the art “would understand that the relevant distance for the sphere measurement is where the user *is* located when viewing the sphere figure(s); not where the user formerly *was*.” *Id.* (citing

Ex. 1003 ¶¶ 83–87, Fig. 7A). Patent Owner argues “[o]nce the user is sent to the second determined distance, the first determined distance is not relevant to the calculation.” *Id.* at 3.

We are persuaded by Petitioner’s arguments. For petitions filed before November 13, 2018, we interpret claims using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b) (2017); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). A claim may be indefinite if it is “ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention” and the applicant “fails to provide a satisfactory response.” *In re Packard*, 751 F.3d 1307, 1311 (Fed. Cir. 2014). The Supreme Court has instructed that “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

The pertinent limitations from proposed substitute claim 23 are reproduced below, with emphasis added:

guiding the person to a desired distance away from the computerized screen by: first, *determining, using a camera, a distance of the person from the computerized screen*, second, providing instructions to the person *based on the determined distance* to cause the person to move towards the desired distance, and third, *determining, using a camera, a distance of the person from the computerized screen*; and separately, for each eye of the person:

...

wherein determining the sphere prescription for the person comprises testing for the sphere prescription by: displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one input, and using the at least one input in conjunction with *the determined distance of the person from the computerized screen* to calculate a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person;

Mot. Amend Claims App'x 1. Proposed substitute claims 30 and 37 recite commensurate limitations, and claims 24–29 and 31–36 incorporate these limitations by reference. *Id.* at 1–8.

Although proposed substitute claim 23 recites “guiding the person to a desired distance” and “caus[ing] the person to move towards the desired distance,” the claim does not recite that the person ever *reaches* the desired distance, which creates ambiguity in the claim as to *which* determined distance is being referenced in the “wherein determining the sphere prescription . . .” limitation. The ambiguity is amplified in that “*the determined distance*” in the “guiding . . .” limitation refers to the first distance determined, yet Patent Owner argues that “the determined distance” in the “wherein determining the sphere prescription . . .” limitation refers to the second distance determined, thereby creating two limitations that purportedly refer to two different determined distances, yet recite the same claim language. This creates ambiguity, and we are persuaded the proposed substitute claims are indefinite under both the *Packard* and the *Nautilus* standards.

In consideration of the above, we agree with Petitioner that the proposed substitute claims are indefinite.

Accordingly, we deny Patent Owner’s Motion to Amend as to substitute claims 23–37.

B. Ground II - Substitute Claims 23, 24, 26, 27, 30, 31, 33, and 34

Patent Owner asserts that narrowing limitations have been added to independent claims 23 and 30 to clarify a claimed guidance mechanism, and to incorporate using two electronic devices to perform the method of the patent. Mot. Amend 16.

Petitioner argues that proposed substitute claims 23, 24, 26, 27, 30, 31, 33, and 34 are obvious over the combination of Maddalena, Yoo, and Bartlett. Opp. Amend 7.

1. Bartlett (Ex. 1027)

Bartlett is titled “Shape Discrimination Vision Assessment and Tracking System,” and generally discloses a “handheld vision tester and a method of self-testing vision of a user of the handheld vision tester.” Ex. 2017, code (54), Abstr. Bartlett explains that because some vision tests are sensitive to distance from the user to the display device, it is important that the handheld device operates in a manner to ensure that the test is undertaken at an appropriate viewing distance. Ex. 2017 ¶ 31. Bartlett describes achieving this through several different options, including through the use of a camera or other methods. *Id.* at ¶¶ 31–32. The handheld device may detect whether the user is a suitable distance for the test being operated, and if not, may signal to the user that they are either too close or too far away. *Id.* at ¶ 33. The handheld device may not continue operation of the testing until the user is at a suitable distance away to ensure accurate and reliable testing. *Id.*

2. Claim 23

We have reviewed the parties’ arguments and evidence of record. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that proposed substitute claim 23 would have been obvious over the combination of Maddalena, Yoo, and Bartlett. We address the modified and new limitations in turn.

- a. *“A method for determining a corrective lenses prescription for a person using a first electronic device having a computerized screen and a second electronic device, the method comprising, [separately, for each eye of the person:]”*

The preamble of proposed substitute claim 23 recites “a method for determining a corrective lenses prescription for a person using a first electronic device having a computerized screen and a second electronic device.” Mot. Amend Claims App’x 1. Petitioner provides argument and citations showing the preamble is taught by Maddalena and Yoo. Opp. Amend 9–10 (citing Ex. 1004, 5:1–8:4; Ex. 1006 ¶¶ 79, 105, 108, 204–225, Figs. 10D, 10E; Pet. 31–32). Maddalena teaches vision testing through the use of a computer system with, *inter alia*, input devices and a display, where the results of the tests are used to calculate a corrective lens prescription. Ex. 1004, 5:30–40, 6:48–62. Yoo teaches vision testing with the use of a second electronic device with a multi-touch screen that can be used as an alternative input mechanism. Ex. 1006 ¶¶ 94, 204–225, Figs. 10D, 10E. Patent Owner does not dispute these teachings. Accordingly, we find that Maddalena and Yoo teach the preamble of proposed substitute claim 23. We will address the combination of Maddalena and Yoo below in Section IV.B.4.

- b. *“guiding the person to a desired distance away from the computerized screen by: first, determining, using a camera, a distance of the person from [a] the computerized screen, second, providing instructions to the person based on the determined distance to cause the person to move towards the desired distance, and third, determining, using a camera, a distance of the person from the computerized screen; and separately, for each eye of the person”*

Proposed substitute claim 23 recites “guiding the person to a desired distance away from the computerized screen by: first, determining, using a camera, a distance of the person from the computerized screen.” Mot. Amend Claims App’x 1. We agree with Petitioner that Maddalena and Bartlett teach this portion of the limitation. See Opp. Amend 10–11 (citing Ex. 1004, 10:41–45; Pet. 34–35; Ex. 1027 ¶ 31). Maddalena teaches that the user is instructed to measure or mark out three predetermined distances from the video display prior to the vision test. Ex. 1004, 10:41–45. Bartlett teaches the use of a camera “to ensure the user is at an acceptable distance from the handheld device.” Ex. 1027 ¶ 31. Patent Owner does not dispute these teachings.

Proposed substitute claim 23 further recites “second, providing instructions to the person based on the determined distance to cause the person to move towards the desired distance.” We agree with Petitioner that Bartlett teaches this portion of the limitation. Opp. Amend 12 (citing Ex. 1027 ¶ 33). Bartlett teaches:

If the handheld device 100 detects that the user is not at a suitable distance for the test that is operating, the hand held

device 100 may signal to the user through a visible, audible, or other way that he or she is either too close or too far away. The handheld device 100 may not continue operation of the testing until the user has positioned himself or herself at an appropriate distance so that accurate and reliable testing is substantially ensured.

Ex. 1027 ¶ 33. Patent Owner does not dispute these teachings.

Proposed substitute claim 23 further recites “third, determining, using a camera, a distance of the person from the computerized screen.” Mot. Amend Claims App’x 1. We agree with Petitioner that Bartlett teaches this portion of the limitation. Opp. Amend 12–13 (citing Ex. 1027 ¶ 33). As shown above, Bartlett teaches that the handheld device may not continue operation of the testing until the user is at the appropriate distance from the screen, which indicates that the system is determining the distance of the user from the screen. Ex. 1027 ¶ 33. Patent Owner does not dispute these teachings.

Proposed substitute claim 23 further recites “separately, for each eye of the person.” Mot. Amend Claims App’x 1. We agree with Petitioner that Maddalena teaches this portion of the limitation. Opp. Amend 13. Maddalena teaches performing the vision test separately for each eye. Ex. 1004, 16:62–17:1. Patent Owner does not dispute this teaching.

Accordingly, we find that Maddalena and Bartlett teach this limitation. We will address the combination of Maddalena and Bartlett below in Section IV.A.4.

- c. “wherein the second electronic device is a standalone and hand-portable electronic device used to receive inputs from the person; and”*

Proposed substitute claim 23 recites “wherein the second electronic device is a standalone and hand-portable electronic device used to receive inputs from the person.” Mot. Amend Claims App’x 2. We agree with Petitioner that Yoo teaches this portion of the limitation. Opp. Amend 12–15 (citing Ex. 1006 ¶¶ 79, 105, 108, 204–225, Figs. 10D, 10E). Yoo teaches use of a multi-touch device, such as an iPod Touch, can be used to receive inputs from a user during a vision test. Ex. 1006 ¶¶ 94, 204–225, Figs. 10D, 10E. Patent Owner does not dispute these teachings. We find that Yoo teaches this limitation.

- d. “wherein the first electronic device and the second electronic device each separately comprise a processor and computer readable memory.”*

Proposed substitute claim 23 recites “wherein the first electronic device and the second electronic device each separately comprise a processor and computer readable memory.” Mot. Amend Claims App’x 2. We agree with Petitioner that Maddalena and Yoo teach this limitation. Opp. Amend 15–16 (citing Ex. 1004, 2:34–49; Ex. 1006 ¶¶ 78, 105, 108, 204–225, Figs. 10D, 10E). Maddalena describes the use of a “conventional-general purpose computer system,” including a processor unit and memory, where the processes may be “implemented as software, such as an application program executing within the computer system.” Ex. 1004, 5:9–14, 41–42. Maddalena further describes “a computer readable medium, having a program recorded thereon, where the program is configured to

make a computer execute a procedure to . . . display the sequence of graphic objects on the video display . . . record at least one action of the human subject . . . and calculate at least one corrective lens prescription.” *Id.* at 2:34–47. Yoo teaches use of a multi-touch device, such as an iPod Touch. *E.g.*, Ex. 1006 ¶¶ 94, 132. Dr. Brady provides testimony that a person of ordinary skill would “understand that such multi-touch devices comprise a processor and computer readable memory separately from Yoo’s main system.” Ex. 1040 ¶ 62. Patent Owner does not dispute these teachings. Accordingly, we find that Maddalena and Yoo teach this limitation.

3. *Remaining Limitations in Substitute Claim 23*

The remaining limitations in proposed substitute claim 23 are identical to those in original claim 1, and Petitioner relies on the same arguments as for original claim 1, which we agree with, for the same reasons as set forth above. *See* Section III.E.1; *see* Opp. Amend. 13–14. Patent Owner does not dispute the teachings in the remaining limitations. Accordingly, for the same reason as set forth above in Section III.E.1, we find Maddalena teaches the remaining limitations in claim 23.

4. *Combination of Maddalena, Yoo, and Bartlett*

Petitioner presents similar rationale to combine the references as in the grounds against the original claims. Opp. Amend 7–9. Relying on Dr. Brady’s Reply Declaration, Petitioner argues one of skill in the art “would have been motivated to improve Maddalena’s system with Bartlett’s automated distance measurement and guiding technique because it would improve the convenience, flexibility, and accuracy of Maddalena’s vision testing system.” *Id.* (citing Ex. 1040 ¶ 54); *see also* Opp. Amend 11. Petitioner also argues a person of ordinary skill in the art “would be

motivated to improve Maddalena's vision testing system with Yoo's input methodology, which uses widely available technologies to enable users to provide input at a distance." Opp. Amend 8–9 (citing Ex. 1040 ¶ 55).

Patent Owner also makes similar arguments on the rationale to combine the references as with respect to the original claims. PO Reply Amend 3–7. Patent Owner argues because Bartlett does not determine prescriptions and can be used no further than arm's length, a person of ordinary skill in the art would not be motivated to combine it with Maddalena because they would not have the confidence that it would be accurate enough for Maddalena. *Id.* at 4. Patent Owner also argues Bartlett discloses sources of inaccuracy in camera-based techniques, none of which a person of ordinary skill in the art would be able to resolve, which would further undermine the motivation to combine. *Id.* at 4–6. Patent Owner also argues because Bartlett teaches conventional means of measuring out the distance, so a person of ordinary skill in the art would not be motivated to seek alternative distance determination methods. *Id.* at 6–7.

Petitioner replies that, like prescribing systems, Bartlett conducts its test to ensure that the test sequence is conducted at the appropriate distance. Pet. Sur-Reply Amend 9 (citing Ex. 1027 ¶ 31). Petitioner also argues that Bartlett addresses the purported sources of inaccuracy in camera-based measurements that Patent Owner identifies. *Id.* at 7 (citing Ex. 1027 ¶ 31). Petitioner further argues that Bartlett improves Maddalena's accuracy because it is continuously checking to ensure the user is at the appropriate distance, whereas, Maddalena does not have such a check. *Id.* at 8 (citing Ex. 1027 ¶ 33).

For similar reasons as set forth above with respect to the combination of Maddalena and Berry (Section III.E.2) and Maddalena, Berry, and Yoo (Section III.F.2), we disagree with Patent Owner, based on this record, that a person of ordinary skill in the art would not be motivated to combine Bartlett’s automated distance and guidance determination with Maddalena. Bartlett describes conducting the vision test at the appropriate viewing distance so that “accurate and reliable testing is substantially ensured,” so we disagree with Patent Owner’s argument that Bartlett is less accurate than Maddalena. Ex. 1027 ¶ 33; *see also id.* at ¶¶ 31, 54 (“[i]f any situations arise during the vision test that may compromise the accuracy of the results, the user may be notified to correct them”). Moreover, we are persuaded by Dr. Brady’s testimony that Bartlett’s automated distance measurement and guiding technique would improve the accuracy of Maddalena’s system because it will continuously check to make sure the user is at the appropriate distance, rather than relying on the user measurements alone. Ex. 1040 ¶ 54; Ex. 1027 ¶ 33. We also agree with Petitioner that although Bartlett identifies some potential sources for inaccuracy of the camera-based techniques, Bartlett explicitly addresses how to minimize those inaccuracies, so we are not persuaded it would deter one of ordinary skill in the art. *See* Ex. 1027 ¶ 31; Pet. Sur-Reply Amend 7. Finally, we agree with Petitioner that Bartlett never states that its camera based techniques could not work beyond arm’s length, or could only work in a hand-held device, but rather, instead, indicates that it is possible to add auxiliary displays or an external monitor, indicating that it would work beyond arms’ length. *See* Pet. Sur-Reply Amend 9 (citing Ex. 1027 ¶¶ 36–37). We also note that Bartlett indicates that it may be used with a notebook computer. Ex. 1027 ¶ 38.

Regarding convenience, Patent Owner argues nothing suggests the multiple prerequisite steps of Bartlett—including knowing the magnification of the camera, calibrating the camera, and providing certain dimensions of the user’s face before starting—would be more convenient than measuring out distances and placing markers as in Maddalena. PO Reply Amend 5 (citing Ex. 1027 ¶ 31). According to Patent Owner, “before starting the test the user would already have measured a distance from the screen *and* performed various other steps, whereas Maddalena only required one simple step – measuring distance.” *Id.*

We disagree. As Petitioner points out, Bartlett does not require the user to take any of these steps; rather, they are optional. See Pet. Sur-Reply Amend 6 (citing Ex. 1040 ¶¶ 27–30). We also agree with Petitioner that Bartlett teaches that the camera, not the user, knows the magnification of the camera and that the other two prerequisite steps are both calibration techniques that are not inconvenient to the user. *Id.*

Patent Owner also argues Petitioner fails to show Bartlett would improve Maddalena’s flexibility because Bartlett is a handheld device intended for arm’s length operation, and a person of ordinary skill in the art would not deviate from Maddalena’s three specified differences. PO Reply Amend 6.

We disagree. As discussed above, we agree with Petitioner that there is no indication that Bartlett’s camera based technique would not work beyond arm’s length. See Ex. 1027 ¶¶ 36–37; Pet. Sur-Reply Amend 9.

Patent Owner also argues Yoo is not analogous art and that Petitioner failed to establish that a person of ordinary skill in the art would be motivated to combine Maddalena and Yoo. PO Reply Amend 7. Petitioner

presents essentially the same arguments as set forth for the original claims, (Pet. Sur-Reply 9–11), which we find persuasive for the same reasons as set forth above in Section III.F.2.

Thus, for the foregoing reasons, we find Petitioner has articulated sufficient reasoning, with rational underpinning, to combine Maddalena, Bartlett, and Yoo. *See KSR*, 550 U.S. at 417–418.

In view of the foregoing, Petitioner has shown proposed substitute claim 23 to be unpatentable under 35 U.S.C. § 103(a), by a preponderance of the evidence, over Maddalena, Bartlett, and Yoo.

Accordingly, we deny Patent Owner’s Motion to Amend as to substitute claim 23.

5. *Claim 30*

Proposed substitute claim 30 is reproduced below with annotations showing amendments:

30. A method for determining a corrective lenses prescription for a person using a first electronic device having a computerized screen and a second electronic device, the method comprising, [separately, for each eye of the person:]

guiding the person to a desired distance away from the computerized screen by: first, determining, using a camera, a distance of the person from [a] the computerized screen, second, providing instructions to the person based on the determined distance to cause the person to move towards the desired distance, and third, determining, using a camera, a distance of the person from the computerized screen; and separately, for each eye of the person:

determining a sphere prescription for the person via the computerized screen and without the use of a refractor lens assembly,

wherein determining the sphere prescription for the person comprises testing for the sphere prescription by: displaying a sphere figure to the person via the computerized screen and enabling the person to select at least one multiple choice input, and

using the at least one multiple choice input in connection with the determined distance of the person from the computerized screen to determine a sphere measurement that is used to determine the sphere prescription of the corrective lenses prescription for the person[.];

wherein the second electronic device is a standalone and hand-portable electronic device used to receive inputs from the person; and

wherein the first electronic device and the second electronic device each separately comprise a processor and computer readable memory.

Mot. Amend Claims App'x 3–4.

Proposed substitute claim 30 differs from proposed substitute claim 23 in the same way that original claim 13 differs from original claim 1, reciting using “at least one multiple choice input” versus “at least one input,” and “determine a sphere measurement” versus “calculate a sphere measurement.” See Mot. Amend Claims App'x 1–4. Petitioner relies on the same arguments for proposed substitute claim 30 as proposed substitute claim 23. Opp. Amend 9–16. We have reviewed the parties' arguments and evidence of record. For the same reasons as discussed above for original claim 13 and proposed substitute claim 23, we determine that Petitioner has shown by a preponderance of the evidence that proposed substitute claim 30 would have been obvious over the combination of Maddalena, Bartlett, and Yoo.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claim 30.

6. Claims 24 and 31

Proposed substitute claim 24 depends from proposed substitute claim 23 and is reproduced below with annotations showing amendments:

24. The method according to claim [4] 23 wherein the second electronic device further comprises a computerized screen such that the method comprises using two or more computerized screens.

Mot. Amend Claims App'x 2.

Proposed substitute claim 31 depends from proposed substitute claim 30 and is reproduced below with annotations showing amendments:

31. The method according to claim [13] 30 wherein the second electronic device further comprises a computerized screen such that the method comprises using two or more computerized screens.

Mot. Amend Claims App'x 4–5.

We agree with Petitioner that Yoo teaches these limitations. Opp. Amend 16 (citing Ex. 1006 ¶¶ 94, 205). Yoo teaches that the multi-touch input device “may include a capacitive display screen.” Ex. 1006 ¶ 205. Patent Owner does not dispute this teaching. Accordingly, based on the disclosure in Yoo, we find Yoo teaches the limitations in proposed substitute claims 24 and 31, and we conclude Petitioner has shown by a preponderance of the evidence that proposed substitute claims 24 and 31 would have been obvious over the combination of Maddalena, Bartlett, and Yoo.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claims 24 and 31.

7. Claims 26 and 33

Proposed substitute claim 26 depends from proposed substitute claim 25 and is reproduced below with annotations showing amendments:

26. The method according to claim [1] 25, wherein the method is provided via an internet.

Mot. Amend Claims App'x 3.

Proposed substitute claim 33 depends from proposed substitute claim 31 and is reproduced below with annotations showing amendments:

33. The method according to claim [~~13~~] 31, wherein the method is provided via an internet.

Mot. Amend Claims App'x 5. We agree with Petitioner that Maddalena teaches these limitations, for the same reason as discussed above with respect to original claims 7 and 15. *See* Opp. Amend 16. Patent Owner does not dispute these teachings. Accordingly, we conclude Petitioner has shown by a preponderance of the evidence that proposed substitute claims 26 and 33 would have been obvious over the combination of Maddalena, Bartlett, and Yoo.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claims 26 and 33.

8. Claims 27 and 34

Proposed substitute claim 27 depends from proposed substitute claim 24 and is reproduced below with annotations showing amendments:

27. The method according to claim [1] 24, wherein the method further comprises sending the determined sphere prescription to at least one doctor for review and approval.

Mot. Amend Claims App'x 3.

Proposed substitute claim 34 depends from proposed substitute claim 31 and is reproduced below with annotations showing amendments:

34. The method according to claim [~~13~~] 31, wherein the method further comprises sending the determined sphere prescription to at least one doctor for review and approval.

Mot. Amend Claims App'x 5. We agree with Petitioner that Maddalena teaches these limitations, for the same reason as discussed above with respect to original claims 8 and 16. See Opp. Amend 16. Patent Owner does not dispute these teachings. Accordingly, we conclude Petitioner has shown by a preponderance of the evidence that proposed substitute claims 27 and 34 would have been obvious over the combination of Maddalena, Bartlett, and Yoo.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claims 27 and 34.

C. Ground III - Substitute Claim 37

Patent Owner asserts that similar narrowing limitations have been added to independent claim 37 to clarify a claimed guidance mechanism, and to incorporate using two electronic devices to perform the method of the patent. Mot. Amend 16. Claim 37 is similar to proposed substitute claims 23 and 30, except that it includes a second sphere figure in a similar way as original claims 2 and 3.

Petitioner argues that proposed substitute claim 37 is obvious over the combination of Maddalena, Yoo, Bartlett, and Chou. Opp. Amend 17.

Proposed substitute claim 37 is reproduced below with annotations showing amendments:

37. A non-transitory computer readable medium including a plurality of instructions, which when executed by at least one processor, cause the at least one processor to operate with [~~at least one~~] first electronic device having a computerized display device and [~~at least one~~] a second electronic input device to determine a corrective lenses prescription for a person comprising, [for each eye of the person:]

guiding the person to a desired distance away from the computerized screen by: first, determining, using a camera, a distance of the person from [a] the computerized screen, second, providing instructions to the person based on the determined distance to cause the person to move towards the desired distance, and third, determining, using a camera, a distance of the person from the computerized screen; and for each eye of the person

determining, without the use of a refractor lens assembly, a sphere prescription for the person by, (i) presenting a first sphere figure to the person via the computerized screen, wherein the first sphere figure is too small to be clearly seen by the person,

(ii) enabling the person to make at least one input to increase the size of the first sphere figure until it can just barely be made out by the person, wherein the determined distance of the person from the computerized screen is used in conjunction with the at least one input to calculate a first sphere measurement,

(iii) presenting a second sphere figure to the person via the computerized screen, wherein the second sphere figure is large enough to be clearly seen by the person, and

(iv) enabling the person to make at least one input to decrease the size of the second sphere figure just until it can no longer be made out by the person, wherein the determined distance of the person from the computerized screen is used in conjunction with the at least one input to calculate a second sphere measurement;

wherein a final sphere measurement is based, at least in part, on the first sphere measurement and the second sphere measurement[-];

wherein the second electronic device is a standalone and hand-portable electronic device used to receive inputs from the person; and

wherein the first electronic device and the second electronic device each separately comprise a processor and computer readable memory.

Mot. Amend Claims App'x 6–8.

Petitioner relies on the same arguments for proposed substitute claim 37 as proposed substitute claim 23 and original claims 2 and 3. Opp. Amend 17. Patent Owner does not dispute this showing, but argues Petitioner has failed to establish a motivation to combine the references for the same reasons as discussed above with the combination of Maddalena, Bartlett, and Yoo. PO Reply Amend 7. We have reviewed the parties' arguments and evidence of record. For the same reasons as discussed above for original claims 2 and 3 (Section III.E.2 and Section III.G.1) and proposed substitute claim 23 (Section IV.B.4), we determine that Petitioner has shown by a preponderance of the evidence that proposed substitute claim 37 would have been obvious over the combination of Maddalena, Bartlett, Yoo, and Chou.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claim 37.

D. Ground V - Substitute Claims 25, 28, 32, and 35

Petitioner argues proposed substitute claims 25, 28, 32, and 35 are obvious over the combination of Maddalena, Yoo, Bartlett, and Young. Opp. Amend 19.

Patent Owner argues Petitioner has (1) failed to establish that Young is analogous art and (2) failed to provide evidence that a person of ordinary skill in the art would be motivated to combine Young with Maddalena and Yoo. PO Amend Reply 11–12.

1. Young (Ex. 1043)

Young is titled “Presentation Remote Control” and generally describes “accessing a presentation stored on a remote server with a first computing device that is connected to a remote server over a network.” Ex. 1043, [54], Abstr.

2. Claims 25 and 32

Proposed substitute claim 25 depends from proposed substitute claim 24 and is reproduced below with annotations showing amendments:

25. The method according to claim [11] 24, wherein [~~at least one of~~] the computerized screen[s] of the second electronic device is enabled to operate as a remote for [~~at least one of~~] the [~~other~~] computerized screen[s-] of the first electronic device via a server;

wherein the first electronic device and the second electronic device are each separately communicatively coupled with a server;

wherein at least one of the first electronic device or the second electronic device is paired with the other of the first electronic device or the second electronic device using a server;

wherein the corrective lenses prescription is determined, at least in part, using inputs of the user provided via the second electronic device in response to sphere figures displayed via the first electronic device.

Mot. Amend Claims App'x 2–3. Proposed substitute claim 32 recites the same limitations, but depends from proposed substitute claim 31. Mot. Amend Claims App'x 5.

Claim 25 recites “the method according to claim 24, wherein the computerized screen of the second electronic device is enabled to operate as a remote for the computerized screen of the first electronic device via a server.” Mot. Amend Claims App'x 2. As discussed with respect to original claims 11, 12, 19, and 20, Petitioner established that the combination of Maddalena and Yoo teaches a multi-touch device operating as a remote for a vision testing system, which includes determining a contact lens prescription using inputs of the user in response to sphere figures displayed on a computer. See Section III.F. We agree with Petitioner that Young further provides how the operation would occur via a server. Opp. Amend 22 (citing Ex. 1043 Abstr.). Specifically, Young teaches “the second computing device is connected to the remote server over a network” and “[t]he communication [between the first computing device and the second computing device] occurs only through the remote server.” Ex. 1043, Abstr. Patent Owner does not dispute these teachings.

Claim 25 further recites “wherein the first electronic device and the second electronic device are each separately communicatively coupled with a server.” Mot. Amend Claims App'x 2. We agree with Petitioner that Maddalena teaches that its computer based vision system is coupled with a server. Opp. Amend 23 (citing Ex. 1004, 2:50–310, 7:10–39). We further agree with Petitioner that Young teaches a first and second computing device, where both the first and second computing devices are connected to

a remote server over a network. *Id.* (citing Ex. 1043, Abstr.). Patent owner does not dispute these teachings.

Claim 25 further recites “wherein at least one of the first electronic device or the second electronic device is paired with the other of the first electronic device or the second electronic device using a server.” Mot. Amend Claims App’x 2. We agree with Petitioner that Yoo teaches this limitation. See Opp. Amend 23. Yoo teaches the multi-touch device “may connect to the control unit . . . over a wireless link,” that “may utilize Bluetooth . . . or any other standard or nonstandard wireless communication protocol.” Ex. 1006 ¶ 132. We also agree with Petitioner that Young discloses the “paired” limitation, as Yoo teaches linking technology for input devices and server based applications. See Opp. Amend 20–21 (citing Ex. 1043, Abstr., 4:2–6:3, 6:16–24, Fig. 1A), 23. Patent Owner does not dispute these teachings.

Claim 25 further recites “wherein the corrective lenses prescription is determined, at least in part, using inputs of the user provided via the second electronic device in response to sphere figures displayed via the first electronic device.” As discussed with respect to original claims 11, 12, 19, and 20, Petitioner established that the combination of Maddalena and Yoo determines a contact lens prescription using inputs of the user from a remote electronic device in response to sphere figures displayed on a computer. See Section III.F; Opp. Amend 24. Patent Owner does not dispute these teachings.

Petitioner argues Young is analogous art because it is “reasonably pertinent to the problem that the inventor was trying to solve.” Opp. Amend 21. Specifically, Petitioner argues that one of the problems the inventor of

the '378 patent was trying to solve was enabling a computer and a smart phone to work in tandem with one another. Opp. Amend 21 (citing Ex. 1041, 12:10–13:24); Pet. Sur-Reply Amend 12. Petitioner argues “Young’s disclosure of linking a computer used as a display device with a smartphone used as a remote control for the display was squarely relevant to this problem.” Opp. Amend 21.

Patent Owner argues that Petitioner fails to show that Young is analogous art. PO Reply Amend 11–12. Specifically, Patent Owner argues that Young “is directed towards using a device for controlling a presentation on another device by communicating with a network over a wireless connection,” but not “directed towards using one device to interact with another for the purposes of making inputs to a visual acuity test, or to make any selection in response to displayed indicia other than moving to the next slide.” *Id.*

We disagree that Young is not analogous art. Patent Owner defines the problem in Young too narrowly. Young allows a user to access and control a presentation uploaded to a server and shown over a separate system by using an Internet-enabled wireless device, such as a smartphone. Ex. 1042, 1:41–50. Similarly, the '378 patent was concerned with allowing a patient to use one computerized screen to control another computerized screen. Ex. 1001, 12:9–15; Ex. 1041, 12:10–13:24; Ex. 1040 ¶ 70. We, therefore, agree with Petitioner that Young is reasonably pertinent to the problem the inventor was trying to solve and is analogous art.

With respect to the combination of Maddalena, Yoo, and Young, Petitioner argues Internet-based linkages would be desirable to one of ordinary skill in the art “because Maddalena’s vision testing system is

delivered by a server over the Internet through a web browser on a client computer.” Opp. Amend 19 (citing Ex. 1040 ¶ 67). Petitioner further argues one of ordinary skill in the art would be motivated to combine Young with Maddalena and Yoo “because it would be the simple substitution of one known element (Internet-based link) for another (Bluetooth link) to obtain predictable results (providing input from the multi-touch device to Maddalena’s server and client).” *Id.* at 21–22. Petitioner also argues that the SMS-based linkage would be more user-friendly than a Bluetooth device pairing and that a person of ordinary skill in the art “would have a reasonable expectation of success with this combination because it relies on standard technologies ‘such as SMS, MMS, and standard web browsers.’” *Id.* at 22.

Patent Owner argues a person of ordinary skill in the art would not be motivated to combine Young with Maddalena, Bartlett, and Yoo because they “already had the solution to the purported problem of making inputs from a distance – standard computer peripherals, and, therefore would not look to Young to provide SMS-based linking of the devices.” PO Reply Amend 11. Patent Owner also argues “Petitioner has provided no evidence that a [person of ordinary skill in the art] would look to or conceive of adapting the technology disclosed in Young (assigned to Google, an organization of technical geniuses far above the ordinary skill level of an optometrist or ophthalmologist [person of ordinary skill in the art]) into a vision testing system.” *Id.* at 12.

We disagree for reasons similar to those regarding the combination of Maddalena and Yoo as discussed *supra* in sections III.F.2 and IV.B.4. In addition, we credit Dr. Brady’s reasoning for substituting Young’s Internet-

based SMS linkage for Yoo's Bluetooth method, which Patent Owner does not rebut. *See* Ex. 1040 ¶ 71.

Thus, for the foregoing reasons, we find Petitioner has articulated sufficient reasoning, with rational underpinning, to combine Maddalena, Bartlett, Yoo, and Young. *See KSR*, 550 U.S. at 417–418.

Petitioner has shown by a preponderance of the evidence that proposed substitute claims 25 and 32 would have been obvious over the combination of Maddalena, Bartlett, Yoo, and Young.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claims 25 and 32.

3. Claims 28 and 35

Proposed substitute claim 28 depends from proposed substitute claim 25 and is reproduced below with annotations showing amendments:

28. The method according to claim [4] 25, wherein the corrective lenses prescription for the person further comprises at least one of a previously-determined axis prescription and a previously determined cylinder prescription as set forth in a previously issued prescription of the person.

Mot. Amend Claims App'x 3.

Proposed substitute claim 35 depends from proposed substitute claim 31 and is reproduced below with annotations showing amendments:

35. The method according to claim [43] 31, wherein the corrective lenses prescription for the person further comprises at least one of a previously-determined axis prescription and a previously determined cylinder prescription as set forth in a previously issued prescription of the person.

Mot. Amend Claims App'x 6.

Claims 28 and 35 are similar to original claims 9 and 17. Petitioner relies on the same arguments for proposed substitute claims 28 and 35 as original claims 9 and 17. Opp. Amend 24. Patent Owner does not dispute these teachings. We have reviewed the parties' arguments and evidence of record. For the same reasons as discussed above for original claims 9 and 17, we determine that Petitioner has shown by a preponderance of the evidence that proposed substitute claims 28 and 35 would have been obvious over the combination of Maddalena, Bartlett, Yoo, and Young.

Accordingly, we deny Patent Owner's Motion to Amend as to substitute claims 28 and 32.

E. Ground VI - Substitute Claims 23–28, 30–35, and 37

Petitioner alternatively argues proposed substitute claims 23–28, 30–35, and 37 are unpatentable under § 103(a) as set forth in Grounds II, III, and V, discussed above, with the addition of the Berry reference. Petitioner argues the combination would use “Berry’s camera-based measurement approach instead of Bartlett’s approach.” Opp. Amend 24–25. Petitioner argues “during distance acuity testing, a person of ordinary skill in the art would ‘have been motivated to provide Bartlett’s instructions to a user who had been determined (using Berry’s camera-based measurement techniques) to be too close for distance acuity testing.’” *Id.* at 25 (citing Ex. 1040 ¶ 63). Petitioner also argues “a person of ordinary skill in the art ‘would also have been motivated to confirm the user had arrived at an acceptable distance-acuity testing distance, using Berry’s camera-based measurement techniques.’” *Id.* (citing Ex. 1040 ¶ 63).

Patent Owner argues “Petitioner fails to provide an adequate motivation to combine Berry with Maddalena or Yoo, much less to further

combine it with each of Bartlett, Young, and Chou.” PO Sur-Reply Amend 12. Patent Owner also argues “Petitioner has failed to demonstrate how its six-reference amalgamation should be combined, why a person of ordinary skill in the art would have combined the references, and why she would have selected the various disclosures from each reference (to the extent they exist) needed to quilt together the claimed system while ignoring the references’ other teachings.” *Id.*

We disagree with Patent Owner’s arguments for the same reasons addressed above in Sections III.E.2, III.F.2, III.G.2, IV.B.4, IV.C., and IV.D.2. Thus, for the foregoing reasons, we find Petitioner has articulated sufficient reasoning, with rational underpinning, to combine Maddalena, Bartlett, Yoo, Chou, Young, and Berry. *See KSR*, 550 U.S. at 417–418.

Accordingly, Petitioner has shown by a preponderance of the evidence that proposed substitute claims 23–28, 30–35, and 37 would have been obvious over the combination of Maddalena, Bartlett, Yoo, Chou, Young, and Berry.

Accordingly, we deny Patent Owner’s Motion to Amend as to substitute claims 23–28, 30–35, and 37.

F. Conclusion

Because Petitioner’s § 112(b) and 103(a) arguments are dispositive on the Contingent Motion to Amend, we decline to address Petitioner’s additional arguments regarding the patentability of substitute claims 23–37. Opp. Amend 1–6, 17–19. For the foregoing reasons, we determine Petitioner has demonstrated by preponderance of the evidence that proposed substitute claims 23–37 are unpatentable.

V. PATENT OWNER’S MOTION TO EXCLUDE EVIDENCE

Patent Owner moved to exclude Exhibits 1027 and 1042 and the corresponding portions of Petitioner’s Reply Brief and Dr. Brady’s Reply Declaration (Ex. 1040) that rely upon them. Mot. Exclude 1. Patent Owner argues Petitioner relies on these Exhibits “to impermissibly modify the original grounds for invalidity asserted its Petition.” Mot. Exclude 2.

Patent Owner also moved to exclude Exhibits 1031–1033 and 1047–1048 and the corresponding portions of Petitioner’s Reply Brief and Dr. Brady’s Reply Declaration (Ex. 1040) that rely upon them. Mot. Exclude 6. Patent Owner argues “these exhibits are relied upon by Petitioner to support an impermissible modification of its original grounds for obviousness by belatedly changing the definition of the person of ordinary skill in the art.” Mot. Exclude 6–7. Patent Owner also asserts these documents constitute inadmissible hearsay. Mot. Exclude 7.

We do not refer to or rely upon Exhibits 1031–1033, 1042, 1047, or 1048 in this Decision. Accordingly, Patent Owner’s Motion to Exclude these exhibits is denied as moot.

Similarly, we do not refer to or rely upon Exhibit 1027 in this Decision as to the original grounds submitted in the Petition. Exhibit 1027 (Bartlett) is discussed and relied on by Petitioner in response to Patent Owner’s Motion to Amend. The grounds asserted by Petitioner in response to Patent Owner’s proposed substitute claims are not original grounds submitted in the Petition. Accordingly, Patent Owner’s Motion to Exclude Exhibit 1027 is denied as moot.

VI. MOTIONS TO FILE SUPPLEMENTAL INFORMATION

Patent Owner moves to submit supplemental information produced by Petitioner in a related litigation proceeding between the parties that allegedly contradicts Petitioner's argument that a person of ordinary skill in the art would have been motivated to combine Maddalena and Berry, and would have had a reasonable expectation of success in doing so. PO Mot. Supp. 1. Specifically, the documents and testimony Patent Owner seeks to submit are directed to the availability of camera specifications at the time of the invention. PO Mot. Supp. 5–6. Patent Owner argues these documents are inconsistent with Petitioner's arguments that a person of ordinary skill in the art could configure the camera system of Berry by referencing publicly available specification documents because the documents and testimony indicate that such documents were not available. PO Mot. Supp. 5. The arguments Patent Owner references were made by Petitioner in the Reply, and relate to Petitioner's argument that "the purpose of camera calibration is to obtain a 'translation between number of pixels and what distance that represents in the real world,'" and "[t]hat information can be obtained from published camera information, as conceded by the '378 patent." Pet. Reply 16–17. We dismiss as moot Patent Owner's motion because we do not rely on Petitioner's arguments regarding the availability of published camera information in reaching our Decision. *See supra* Section III.E.2.

Petitioner moves to submit supplemental information produced in the same concurrent litigation between the parties that allegedly demonstrates (1) the development time of Patent Owner's system; (2) that using larger reference objects was known in the art; and (3) that camera calibration was known in the art. Pet. Mot. Supp. 4. According to Petitioner, these

documents contradict arguments Patent Owner has made in this case. Pet. Mot. Supp. 4. We dismiss as moot Petitioner's motion because even without including this information, Petitioner has established that one of ordinary skill in the art would have found it obvious to combine Maddalena's and Berry's teachings. *See supra* Section III.E.2.

Petitioner filed confidential versions of its Motion to File Supplemental Information and Opposition to Patent Owner's Motion to File Supplemental Information (Papers 60, 65). Patent Owner filed confidential versions of its Motion to File Supplemental Information and Opposition to Petitioner's Motion to File Supplemental Information (Papers 61, 63, 64). Both parties also filed non-confidential versions of these documents (Papers 66–69). Because we do not rely on the confidential versions of the Motions or Oppositions in this Final Written Decision, we expunge these documents. We also dismiss the parties' Motions to File their Motions and Oppositions (Papers 59, 62) under seal as moot.

VII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, claims 1–9, 11–17, and 19–22 of the '378 patent have been shown, by a preponderance of the evidence, to be unpatentable;

FURTHER ORDERED that Patent Owner's Contingent Motion to Amend (Paper 23) is *denied*; and

FURTHER ORDERED that Patent Owner's Motion to Exclude Evidence (Paper 43) is *denied as moot*;

FURTHER ORDERED that Patent Owner's Motion to File Supplemental Information (Papers 61 and 63) is *dismissed as moot*;

FURTHER ORDERED that Petitioner's Motion to Submit

Supplemental Information (Paper 60) is *dismissed as moot*;

FURTHER ORDERED that Petitioner's Motion to File its Motion to Submit Supplemental Information and all documents attached thereto under seal (Paper 59) is *dismissed as moot*;

FURTHER ORDERED that Patent Owner's Motion to Seal its Motion to Submit Supplemental Information and all documents attached thereto (Paper 62) is *dismissed as moot*.

FURTHER ORDERED that Petitioner's Motion to Submit Supplemental Information (Paper 60) and Petitioner's Opposition to Visibly's Motion to Submit Supplemental Information (Paper 65) are to be expunged;

FURTHER ORDERED that Patent Owner's Motion to Submit Supplemental Information (Papers 61 and 63) and Patent Owner's Opposition to Warby Parker's Motion to Submit Supplemental Information (Paper 64) are to be expunged; and

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

Case IPR2018-00802

Patent 9,504,378 B2

PETITIONER:

Peter P. Chen

David A. Garr

Richard L. Rainey

COVINGTON & BURLING LLP

pchen@cov.com

dgarr@cov.com

rrainey@cov.com

PATENT OWNER:

Barry F. Irwin

Reid P. Huefner

IRWIN IP LLC

birwin@irwinip.com

rhuefner@irwinip.com