

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2025-00222
Patent 9,232,158 B2

Before SCOTT A. DANIELS, FREDERICK C. LANEY, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

LANEY, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

Tesla, Incorporated (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1, 2, 4, 5, 8–11, 13–16, and 19 (the “challenged claims”) of U.S. Patent No. 9,232,158 B2 (Ex. 1001, “the ’158 patent”). Intellectual Ventures II LLC (“Patent Owner”) filed a Request for Discretionary Denial. Paper 6 (“Request”). Patent Owner also filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”). Petitioner filed an Opposition to Patent Owner’s Request. Paper 8. On June 13, 2025, the Acting Director of the United States Patent and Trademark Office issued a Decision denying Patent Owner’s Request and resolving the discretionary denial issues. Paper 9.

We have jurisdiction under 35 U.S.C. § 314. Under § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). The Board determines whether to institute a trial on behalf of the Director. 37 C.F.R. § 42.4(a). A decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition.” *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018).

For the reasons set forth below, we determine that Petitioner has demonstrated that there is a reasonable likelihood that at least one of the challenged claims is unpatentable. Accordingly, we institute an *inter partes* review of the challenged claims in the Petition.

B. Real Parties-in-Interest

Petitioner and Patent Owner identify themselves as the real parties-in-interest. Pet. 85; Paper 3, 2.

C. Related Matters

Petitioner and Patent Owner both identify several district court litigations (some transferred, some terminated, and some pending) involving the '158 patent. Pet. 85–86, Paper 3, 2–3. Of particular note is *Intellectual Ventures I LLC et al. v. General Motors Company*, 6:21-cv-01088 (W.D. Tex. October 19, 2021) in which the Court construed several claim phrases. *See* Ex. 1015, 49, 52 (“GM Litigation”). Additionally, the parties identify several IPRs involving the '158 patent. Pet. 85–86, Paper 3, 3. Of particular note is IPR2022-00710 in which we previously construed several phrases. *See* Ex. 1002, 15–22 (“Toyota IPR”).

D. The '158 Patent

The '158 patent, titled “Large Dynamic Range Cameras,” relates to “[a] digital camera [that] includes a plurality of channels and a processing component operatively coupled to the plurality of channels.” Ex. 1001, codes (54), (57). “Each channel of the plurality of channels includes an optics component and a sensor that includes an array of photo-detectors” and “[t]he processing component is configured to separately control an integration time of each channel,” as well as, “combine data from the plurality of channels to generate an image.” *Id.* at code (57). The '158 patent suggests that this configuration with two or more camera channels enable a camera to have a wide dynamic range that is greater than the dynamic range obtained by a conventional digital camera with a single image sensor channel and one integration time. *Id.* at 4:41–64.

As shown below in annotated Figure 3 provided by Petitioner (Pet. 9), the '158 patent describes a digital camera subsystem 210 (gray) that includes multiple camera channels 260A-260D (blue), each channel including a respective sensor portion 292A-292D (red) and an optics portion 290A-290D (purple) that receives and transmits light (yellow) to the sensor portions. *Id.* at 7:17–33.

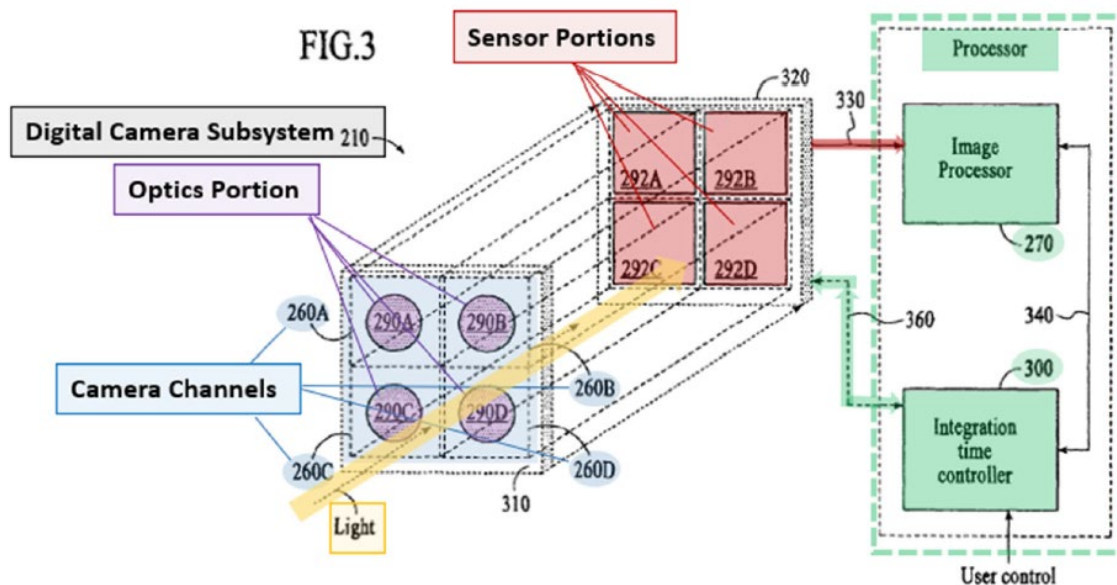


Figure 3 is a block diagram of a digital camera subsystem 210 in accordance with the invention disclosed by the '158 patent. The '158 patent describes subsystem 210 as also including “an image processor portion 270 [green] (referred to as image processor 270) and an integration time controller portion 300,” which are coupled to the sensor portions via communication couplings or links, e.g., signal lines 330 (red arrow) and 360 (green arrow). *Id.* at 8:32–35. The controller “provides integration time control for each of the camera channels” and the image processor “generates a combined image based at least in part on the images from two or more of the camera channels.” *Id.* at 8:32–38, 8:63–66.

E. Illustrative Claim

Petitioner challenges claims 1, 2, 4, 5, 8–11, 13–16, and 19 of the '158 patent. Pet. 1. Claims 1, 9, and 15 are the independent claims. Ex. 1001, 25:31–39, 26:5–14, 25:30–39. Independent claim 1 is directed to an image capture device with a plurality of sensors and optics components, as well as, a processing component. *Id.* at 25:31–39. Claims 2, 4, 5, and 8 depend from claim 1. *Id.* at 25:40–26:4. Independent claim 9 is directed to a system similar to the image capture device described in claim 1. *Id.* at 26:5–14. Claims 10, 11, 13, and 14 depend from claim 9. *Id.* at 26:15–29. Claim 15 is directed to a method of operation for a system similar to the system described in claim 15. *Id.* at 26:30–39. Claims 16 and 19 depend from claim 15. *Id.* at 26:40–54.

Independent claims 1 and 9 are illustrative and are reproduced below with bracketed labels employed by Petitioner to facilitate analysis and discussion.

[1.0] An image capture device comprising:

[1.1] a plurality of sensors;

[1.2] a plurality of optics components, wherein each optics component of the plurality of optics components is configured to pass light to a sensor of the plurality of sensors; and

[1.3] a processing component configured to control an integration time of each sensor.

* * * *

[9.0] A system comprising:

[9.1] a plurality of channels, wherein each channel of the plurality of channels includes a sensor; and

[9.2.1] a processing component coupled to the plurality of channels,

[9.2.2] wherein the processing component is configured to determine an integration time of each channel of the plurality of channels,

[9.2.3] wherein the processing component is configured to combine data from the plurality of channels received to provide an image.

Ex. 1001, 25:31–39, 26:5–14.

F. Prior Art and Asserted Grounds

Petitioner asserts that one or more of the challenged claims would have been obvious on the following grounds:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)
1, 2, 5, 8, 9, 11, 13–16, 19	103(a)	Matsushima ²
1, 2, 4, 5, 8–11, 13, 14	103(a)	Yu ³ , Miyazaki ⁴

Pet. 11. Petitioner supports its challenge with the Declaration of R. Michael Guidash (Ex. 1003).

II. ANALYSIS

For each Ground, Petitioner provides an element-by-element analysis to demonstrate either how Matsushima renders unpatentable claims 1, 2, 5,

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the challenged claims of the ’158 patent have an effective filing date before the effective date of the applicable AIA amendment, we refer to the pre-AIA version of 35 U.S.C. § 103.

² JP Publication No. 2003-319231, published November 7, 2003 (Ex. 1007, “Matsushima”).

³ US Patent No. 6,611,289 B1, issued August 26, 2003 (Ex. 1005, “Yu”).

⁴ US Patent No. 7,365,780 B1, issued April 29, 2008 (Ex. 1006, “Miyazaki”).

8, 9, 11, 13–16, and 19 (Ground 1) or how the combination of Yu and Miyazaki renders unpatentable claims 1, 2, 4, 5, 8–11, 13, and 14 (Ground 2). Pet. 11–78. At this stage of the proceeding, Petitioner’s contentions are largely undisputed, except regarding whether there is a sufficient showing of a processing component configured to control an integration time of each sensor or channel, as the challenged independent claims recite (i.e., elements 1.3, 9.2.2, 15.1). *See* Prelim. Resp. 30–61. For Ground 1, Patent Owner disputes whether Matsushima controls individually the integration time of the plurality of sensors or plurality of channels. *See id.* at 34–50. For Ground 2, Patent Owner disputes whether Yu and/or Miyazaki controls the integration time of each sensor, or each channel, because those references fail to disclose integration control in the context of a scene. *See id.* at 50–61.

After considering the contentions and evidence submitted by both parties, for the reasons explained below, we are persuaded the Petition demonstrates sufficiently that there is a reasonable likelihood Petitioner would prevail in proving at least one of the challenged claims is unpatentable. Although Patent Owner presents issues that have merit, we find that those issues do not sufficiently undermine Petitioner’s threshold showing of at least a reasonable likelihood of success; instead, we determine those issues would be best resolved on a more fully developed record. Therefore, we focus our discussion below on the issues raised by Patent Owner so that the parties can develop the record accordingly.

A. Principles of Law

“In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d, 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C.

§ 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 550 U.S. at 416 (citing *U.S. v. Adams*, 383 U.S. 39, 50–51 (1966)).

The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Here, the record contains no evidence of objective indicia of non-obviousness.

B. Level of Ordinary Skill in the Art

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). “This reference point prevents . . . factfinders

from using their own insight or, worse yet, hindsight, to gauge obviousness.”
Id.

Factors pertinent to a determination of the level of ordinary skill in the art include: (1) educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field. *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). In determining a level of ordinary skill, we also may look to the prior art, which may reflect an appropriate skill level. *Okajima*, 261 F.3d at 1355.

Petitioner asserts that a person of ordinary skill in the art at the relevant time would have had a “a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field and 2–3 years of experience in digital imaging systems.” Pet. 6–7 (citing Ex. 1003 ¶¶ 16–18). In the Preliminary Response, Patent Owner contends that a skilled artisan would have had “a bachelor’s degree in electrical engineering, computer science, computer engineering, physics, or a related subject, and two to three years of work experience in digital imaging.” Prelim. Resp. 30 (citing Ex. 2005 ¶ 82).

For purposes of this Decision, and based on the current record, we adopt Petitioner’s characterization of the level of skill for one of ordinary skill in the art. However, we note Patent Owner’s proposed characterization of a skilled artisan is not meaningfully different than the one proposed by Petitioner. Because we find the parties’ characterizations to be consistent with the ’158 patent and the asserted prior art, our analysis below applies Petitioner’s characterization for the level of ordinary skill in the art.

C. Claim Construction

We construe each claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b) (2019). Under this standard, claim terms are generally given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) (“We have frequently stated that the words of a claim ‘are generally given their ordinary and customary meaning.’”).

For “completeness,” Petitioner identifies that “[t]erms in the Challenged Claims were construed by the Board in the Toyota IPR and by the Court in [the GM Litigation].” Pet. 7 (citing Ex. 1002, 14–18; Ex. 1015, 46–54). Petitioner represents that it “applies the prior art in this Petition in accordance with those constructions.” *Id.*

In the Toyota IPR, we held that: (1) “wherein each optics component of the plurality of optics components is configured to pass light to a sensor of the plurality of sensors” is properly understood to mean “each of the plurality of optics components is configured to pass light separately to a

distinct sensor of the plurality of sensors” and “excludes from the scope of claim 1 devices that rely on a common optics component to pass light to multiple camera channels” (Ex. 1002, 19); and (2) “plurality of channels” is properly understood to mean “multiple independent structures that separately pass light to a different respective sensor” and “excludes from the scope of claims 9 and 15 devices that rely on a common optics component to pass light to multiple camera channels” (*id.* at 18). Petitioner contends that those constructions are not in dispute here because “[t]he Petition’s Grounds do not rely on a common optics component to pass light to multiple camera channels.” Pet. 8.

In the GM Litigation, the Court construed “integration time” as “the time the image sensor collects and integrates signal from the scene.” Pet. 8 (citing Ex. 1015, 49). Patent Owner does not challenge this construction. *See* Prelim. Resp. 22–29, 55–60.

Instead, Patent Owner seeks to further construe the Court’s construction by arguing that the term “scene” excludes the time the image sensor collects and integrates signals *for a photograph or still image*. *Id.* Patent Owner summarizes the dispute as follows:

The meaning of integration time in the ‘158 Patent is central to this case and was previously construed in the GM Litigation as “the time the image sensor collected and integrates signal from the scene.” The Petition asserts that the prior art references meet this construction, but glosses over the meaning of “scene” in the context of the intrinsic evidence, including the specification which focuses on the problem of capturing scenes with highly varying illumination, and the prosecution history. As explained above, the ‘158 Patent’s solution—an integration time controller that independently adjusts the integration time for each camera channel—was designed to address dynamic imaging challenges, such as transitions between indoor and

outdoor lighting and motion-induced temporal aliasing. Moreover, the Examiner's shift in prior art application during prosecution, from references directed to still images to those described as being "especially useful in scenes with widely varying light levels," further confirms that "integration time" as defined in the '158 Patent is unrelated to the capture of a still image. Moreover, contemporaneous technical literature, video analysis frameworks, and consumer electronics reinforce this understanding, consistently distinguishing a scene (i.e., a sequence of frames capturing continuous action in time and space) from a photograph or still image. Given this clear distinction, the Petition's attempt to apply the "integration time" in the '158 Patent to photographs or still images contradicts both the intrinsic and extrinsic record.

Prelim. Resp. 22–23 (citing Pet. 8; Ex. 2005 ¶¶ 71–72; Ex. 2009 ¶ 34); *see id.* at 23–29 (citing Ex. 1001, 1:43–45, 1:52–53, 1:58–2:5, 2:34–47, 3:47–57, 4:3–6, 5:3–15; Ex. 2005 ¶¶ 74–81; Ex. 1015, 48; Ex. 1030, 150–151, 153, 515–517; Ex. 2011, 267–269; Ex. 2012, 2–3; Ex. 2015, 7:55–8:11, Fig. 5). At this stage of the proceeding, however, we decline to read into the accepted District Court construction of "integration time" the additional negative limitation that Patent Owner proposes—i.e., the term "scene" excludes a photograph or still image.

This is an issue that warrants a more fully developed record by both parties. For now, even without having the benefit of Petitioner's position on this issue, we determine that there is a reasonable likelihood that Petitioner would be successful in refuting Patent Owner's proposed negative limitation. This is because the '158 patent makes clear that the invention is intended to address "a need for a digital camera in which the effective single-frame dynamic exposure range is expanded" to accommodate situations wherein a scene may include "an indoor room with a window view of the outdoors, an outdoor scene with mixed shadows and bright

sunshine, and evening or night scenes combining artificial lighting and shadows.” Ex. 1001, 1:43–49, 2:28–42, 3:39–41. The ’158 patent explains that “[i]mage capture by the camera is performed using multiple camera channels, and each camera channel is controlled *during a frame under an independent integration time.*” *Id.* at 3:47–50 (emphasis added). The ’158 patent states further that its “digital camera systems, through the use of multiple integration times, enable formation of *an image* having a wide dynamic range by combining the data from all camera channels *to form a composite single frame.*” *Id.* at 3:28–61 (emphasis added). Still further, the ’158 patent states for one exemplary embodiment that “[t]he integration time of at least one channel is controlled relative to the integration time of at least one other channel so that *an image formed by combining data of a frame received simultaneously from the channels has a relatively large dynamic range.*” *Id.* at 5:6–11 (emphasis added).

Rather than supporting Patent Owner’s contention that the meaning of the term “integration time” excludes a photograph or still image, the above illustrative teachings from the ’158 patent establish at least a reasonable likelihood that Petitioner would succeed in establishing that “integration time,” and the term “scene” more particularly, encompasses the time the image sensor collects and integrates signals for a photograph or still image. As Patent Owner appears to acknowledge, the ordinary meaning of “scene” encompasses a “shot,” as well as, a “frame” (Prelim. Resp. 27 (citing Ex. 2011, 267–269)) and, as such, it would be counterintuitive to adopt an interpretation of “integration time” that excludes the very parts that make up a scene. Additionally, dependent claim 2 suggests that “integration time” encompasses a frame of a scene because it recites, “[t]he device of claim 1,

wherein the processing component is further configured to control the integration time of each sensor during a frame.” Ex. 1001, 25:40–42.

For the purposes of determining whether to institute trial or not, we need not construe explicitly any other claim term because only those terms in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

D. Grounds 1 and 2

As noted previously, Petitioner provides an element-by-element analysis to demonstrate how Matsushima renders unpatentable claims 1, 2, 5, 8, 9, 11, 13–16, and 19 (Ground 1) and how the combination of Yu and Miyazaki render unpatentable claims 1, 2, 4, 5, 8–11, 13, and 14 (Ground 2). Pet. 11–78. And those contentions are largely undisputed at this stage of the proceeding except for Ground 1, Patent Owner disputes whether Matsushima controls individually the integration time of the plurality of sensors or plurality of channels. Also, for Ground 2, Patent Owner disputes whether Yu and/or Miyazaki controls the integration time of each sensor, or each channel, because those references fail to disclose integration control in the context of a scene. *See* Prelim. Resp. 34–61. We address each dispute raised in turn.

1. Ground 1

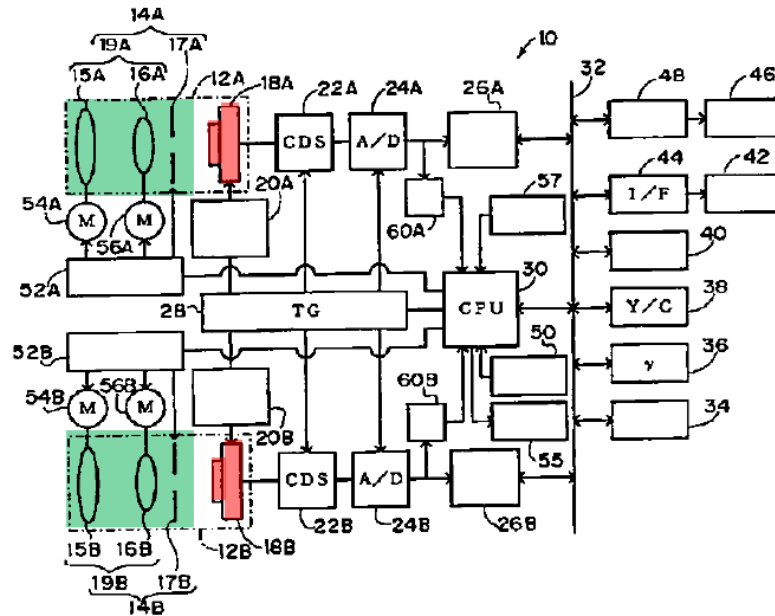
Petitioner contends that Matsushima discloses or at least renders obvious “a processing component configured to control an integration time of each sensor,” as limitation 1.3 recites. Pet. 17 (citing Ex. 1003 ¶¶ 90–100). And for substantially the same reasons, Petitioner contends Matsushima discloses or at least renders obvious “the processing component

is configured to determine an integration time of each channel,” as limitation 9.2.2 recites, and “identifying an integration time for each of a plurality of channels,” as limitation 15.1 recites. *See id.* at 31–32, 39 (citing Ex. 1003 ¶¶ 125–127, 145–148). Patent Owner similarly addresses limitations 1.3, 9.2.2, and 15.1 collectively. *See* Prelim. Resp. 30–50. Accordingly, we rely on limitation 1.3 as representative of the parties’ disputed issues.

a) *Matsushima Overview*

Matsushima, titled “Digital Camera,” is directed to a “a digital camera equipped with multiple imaging systems.” Ex. 1007, code (54), ¶ 1. Figure 1 from Matsushima, which is reproduced below with Petitioner’s annotations, is a block diagram showing the configuration of a digital camera. *Id.* ¶ 72, Fig. 1; Pet. 16.

each optics component
... configured to [separately]
pass light to a [distinct] sensor
[FIG. 1]



Ex.1007, FIG. 1, annotated; Ex.1003, ¶86.

Figure 1 shows a “digital camera 10 [that] has two independent imaging systems (a first imaging system 12A and a second imaging system 12B).” *Id.* ¶ 17. “[I]mages are formed on the light-receiving surfaces of [the Charge Coupled Device (“CCD image sensors”)] 18A and 18B via imaging optics 14A and 14B, respectively.” *Id.* Each imaging optics 14A (and the optics components thereof including a first lens group 19A with an imaging lens 15A and a focus lens 16A, and an aperture 17A) and imaging optics 14B (and the optics components thereof including a second lens group 19B with an imaging lens 15B and a focus lens 16B, and an aperture 17B) are configured to separately pass light to respective and distinct CCD image sensors 18A and 18B of their respective imaging systems 12A and 12B. *Id.* ¶¶ 17, 19, 22.

Matsushima describes the subject images as being “formed on the light receiving surfaces of CCD 18A and CCD 18B via their respective imaging optics 14A and 14B are subjected to signal charge conversion by each sensor in the CCD that corresponds to the amount of incident light.” Ex. 1007 ¶ 23. Matsushima explains that the “accumulated signal charges are retrieved by CCD drive pulses applied by CCD drive circuits 20A and 20B, and are sequentially output from CCD 18A and CCD 18B as voltage signals (analog image signals) corresponding to each signal charge.” *Id.* Matsushima explains additionally that “the CCDs 18 have a so-called electronic shutter function that controls the accumulation time (shutter speed) of the charge accumulated by each sensor via shutter gate pulses.” *Id.* ¶ 24.

Matsushima also describes digital camera 10 as having a central processing unit, CPU 30, which is illustrated below in Figure 1 with

Figure 1 shows, in relevant part, CPU 30 is connected to a timing signal generating circuit (TG) 28 and integration circuits 60A and 60B. Ex. 1007 ¶¶ 27, 34, Fig. 1. Matsushima explains that timing signal generating circuit 28 “provides appropriate timing signals to the CCD drive circuits 20A and 20B . . . in response to commands from the CPU 30, and each circuit is driven synchronously by timing signals applied from the timing signal generating circuit 28.” *Id.* ¶ 27. And that, when performing automatic exposure adjustments (“AE”),

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the integration circuits 60A and 60B, and the aperture value and shutter speed are determined based on this imaging EV value. The apertures 17A and 17B are driven via the drive circuits 52A and 52B, and the CCD 18A and CCD 18B charge accumulation time is controlled using an electronic shutter to reach the determined shutter speed. As a result, optimal exposure adjustment and focusing are performed simply by pointing the imaging lenses 15A and 15B of the digital camera 10 at the subject.

Id. ¶ 34.

b) Petitioner's Contention

Petitioner contends that multiple sensors are shown by Matsushima's CCD image sensors 18A and 18B and that Matsushima's imaging optics 14A and 14B demonstrate optics components that are each configured to pass light to a respective independent sensor 18A and 18B. Pet. 14–17 (citing Ex. 1007 ¶¶ 17, 19, 21, 23, Fig. 1; Ex. 1003 ¶¶ 81–88). And Petitioner contends that Matsushima discloses or at least renders obvious limitation 1.3—“a processing component configured to control an integration time of each sensor.” *Id.* at 17 (citing Ex. 1003 ¶¶ 90–100). Petitioner contends that the “integration time” in Matsushima is controlled with an “electronic shutter” associated with each of the CCD image sensors 18A and 18B, similarly to how the '158 patent describes. *Id.* (citing Ex. 1001, 2:31–34; Ex. 1003 ¶ 92).

Petitioner identifies that Matsushima discloses the CCD image sensors 18A and 18B “have a so-called electronic shutter function that controls the accumulation time (shutter speed) of the charge accumulated by each sensor via shutter gate pulses” and that the “charge accumulation time” of those sensors “is controlled using an

electronic shutter to reach the determined shutter speed.” Pet. 19–20 (citing Ex. 1007 ¶¶ 24, 27, 34–35). And Petitioner describes Matsushima as teaching that CPU 30 controls the “timing signal generating circuit (TG) 28 [that] provides appropriate timing signals to the CCD drive circuits 20A and 20B” to drive their respective electronic shutters. *Id.* at 20 (citing Ex. 1007 ¶ 27). Matsushima, according to Petitioner, “explains that the CPU 30 performs automatic exposure adjustments (AE) by controlling the shutter speed (charge accumulation time) of the electronic shutter.” *Id.* (citing Ex. 1007 ¶¶ 28–29, 34; Ex. 1003 ¶ 96). As a result, Petitioner contends that,

in Matsushima, *a processing component* (CPU 30 together with integration circuits 60A and 60B, Timing Generator (TG) 28 and CCD drive circuits 20A and 20B) is *configured to control* (using an electronic shutter of each sensor) *an integration time* (charge accumulation time) *of each sensor* (sensors 18A and 18B) by controlling the sensor’s electronic shutter, which achieves optimal exposure adjustment for each of the sensor.

Id. at 20–21 (citing Ex. 1007 ¶ 24; Ex. 1003 ¶ 97).

c) Patent Owner’s Contention

Patent Owner concedes that “Matsushima describes a dual-imaging system with separate CCD sensors,” as limitations 1.1 and 1.2 recite. Prelim. Resp. 34. Patent Owner disputes, however, that Matsushima discloses limitation 1.3 because “its exposure control mechanism applies a single charge accumulation time to both CCDs,” which Patent Owner alleges “indicat[es] that integration time is not independently managed for each sensor.” *Id.*; *see also id.* at 37 (“While Matsushima describes its imaging systems as ‘independent’ in that ‘subject images are formed on the light-receiving surfaces of CCD 18A and 18B via imaging optics 14A and 14B,

respectively,’ Matsushima fails to disclose that the integration time of CCD 18A and CCD 18B is independently controlled.” (citing Ex. 1007 ¶ 17; Ex. 2005 ¶ 91)).

Patent Owner acknowledges that “Matsushima’s automatic exposure (AE) control relies on a single luminance value to determine a common aperture setting and shutter speed, which are then applied uniformly to both imaging systems,” but contends that “Matsushima does not disclose any mechanism for setting distinct integration times for each sensor.”

Prelim. Resp. 34. Patent Owner contends that “Matsushima consistently refers to ‘the determined shutter speed’ and ‘the charge accumulation time’ in the singular,” which “reinforc[es] that the same integration time is used for both CCDs.” *Id.* As a result, Patent Owner contends that “Matsushima does not disclose the independent integration time control required by the challenged claims, and the Petition fails to demonstrate otherwise.” *Id.* (citing Ex. 2005 ¶ 87); *see also id.* at 35–36 (citing Ex. 1007 ¶¶ 31, 34–35; Ex. 2005 ¶¶ 88–89).

Patent Owner argues that Petitioner’s evidence “fails to disclose independent control of the integration time of each of Matsushima’s CCDs” because “Matsushima discloses that [the] timing signals [produced by the timing signal generating circuit 28] are used to control the timing of the retrieval of information from the CCDs, rather than the integration time of each CCD.” Prelim. Resp. 36 (citing Pet. 20; Ex. 1007 ¶¶ 23, 27). And “even if such timing signals were used to control the electronic shutters on Matsushima’s CCDs,” according to Patent Owner, “Matsushima does not disclose (expressly or inherently) that such timing signals independently control the electronic shutters.” *Id.* at 36–37. Patent Owner states, “[t]he

fact that Matsushima describes ‘*the* determined shutter speed’ (singular) and ‘*the* charge accumulation time’ (singular) for both CCDs indicates that common (rather than independent) parameter(s) are used to control such devices.” *Id.* at 37 (citing Ex. 2005 ¶ 90).

d) Petitioner’s Showing Is Sufficient for This Stage of the Proceeding

At this stage of the proceeding, we determine that Petitioner has demonstrated sufficiently that there is a reasonable likelihood it would be successful in establishing Matsushima discloses or renders obvious limitation 1.3. Petitioner’s evidence shows that Matsushima discloses “two *independent imaging systems*” controlled by CPU 30 that each form an image on the light-receiving surfaces of CCD sensors 18A and 18B via their respective imaging optics 14A and 14B. Ex. 1007 ¶¶ 17, 28 (emphasis added). In that configuration, Matsushima teaches that CCD sensors 18A and 18B each has an associated CCD drive circuit 20A and 20B that apply CCD drive pulses to retrieve the accumulated signal charges of their respective CCD sensors. *Id.* ¶ 23. Additionally, Matsushima teaches that CCD sensors 18A and 18B each has an “electronic shutter function that controls the accumulation time (shutter speed) of the charge accumulated by each sensor via shutter gate pulses” and that the shutter speed is determined based on integration of the Red, Green, and Blue signals in a single frame by the integration circuit 60A and 60B. *Id.* ¶¶ 24, 31, 34–35.

Patent Owner notably does not dispute Petitioner’s cited evidence shows Matsushima discloses a processing component configured to control the integration time for CCD sensors 18A and 18B. *See* Prelim. Resp. 34–50. Instead, despite Matsushima’s teaching that its imaging systems are

independent, Patent Owner argues that Matsushima does not disclose independently controlling the integration time for CCD sensors 18A and 18B. *Id.* This is so, according to Patent Owner, because Matsushima describes operating CCD drive circuits 20A and 20B synchronously and describes using a single, common shutter speed for each of CCD sensors 18A and 18B. *Id.* at 35–38 (citing Ex. 1007 ¶¶ 17, 23, 27, 31, 34–35; Ex. 2005 ¶¶ 88–92). At this stage of the proceeding, Patent Owner’s argument raises genuine issues of disputed fact that would be best resolved on a fully developed record, rather than undermining the reasonable likelihood of success of Petitioner’s contention.

In particular, going forward, the record would benefit from the parties addressing the issue raised by Patent Owner regarding whether Matsushima discloses to a skilled artisan individually controlling the shutter speed of each CCD sensor 18A and 18B. For example, although Patent Owner notes that Matsushima suggests an embodiment that may use a single, common shutter speed value and an intention for each circuit to be driven synchronously, it is unclear why those facts demonstrate Matsushima fails to suggest individually controlling the integration time of the disclosed *independent* imaging systems. To the extent Patent Owner is suggesting that limitation 1.3 does not encompass individually controlling the integration time of CCDs sensor 18A and 18B to operate synchronously with a single, common shutter speed value, Patent Owner should explain how the intrinsic record of the ’158 patent and the understanding of a skilled artisan at the time of the invention supports that position. Nevertheless, at this time and on this record, we determine there is a reasonable likelihood of success that Matsushima renders unpatentable claims 1, 2, 5, 8, 9, 11, 13–16, and 19.

2. *Ground 2*

Regarding the combination of Yu and Miyazaki, which Petitioner contends demonstrates claims 1, 2, 4, 5, 8–11, 13, and 14 are unpatentable (*see* Pet. 42–48), Patent Owner only disputes limitation 1.3 and whether either of the cited references disclose the application of integration time control during a “scene” because both references only capture a photograph or still image. *See* Prelim. Resp. 50–61. But as we explained above (*see supra* § II.C), absent a more fully developed record, we do not agree that the term “scene,” which is used to construe the claim term “integration time,” *excludes* the time the image sensor collects and integrates signals for a photograph or still image. Therefore, on this record, Patent Owner’s arguments are insufficient to undermine Petitioner’s element-by-element analysis demonstrating Yu and Miyazaki render claims 1, 2, 4, 5, 8–11, 13, and 14 unpatentable, which we find establishes a reasonable likelihood of success.

III. CONCLUSION

Our review of the Petition under 35 U.S.C. § 314 is not to determine whether an individual asserted fact is indisputable or whether a preponderance of the evidence supports Petitioner. Our review is to determine whether the totality of the information presented in the Petition and Preliminary Response shows that there is a reasonable likelihood that Petitioner would prevail with respect to at least one of the claims challenged in the Petition.

After considering the evidence and arguments presented in the Petition, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one claim

of the '158 patent is unpatentable. Therefore, we grant *inter partes* review of the '158 patent on all challenged claims and all grounds asserted in the Petition. *See* 35 U.S.C. § 314(a).

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1, 2, 4, 5, 8–11, 13–16, and 19 of the '158 patent on the unpatentability grounds asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

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