

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

138 EAST LCD ADVANCEMENTS LIMITED,
Patent Owner.

IPR2024-00959
Patent 7,428,082 B2

Before KRISTEN L. DROESCH, GEORGE R. HOSKINS, and
CHRISTOPHER M. KAISER, *Administrative Patent Judges*.

HOSKINS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner Google LLC filed a Petition (Paper 1, “Pet.”) pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of U.S. Patent No. 7,428,082 B2 (Ex. 1001, “the ’082 patent”), claims 1–10. We issued an Institution Decision (Paper 7, “Inst. Dec.”) granting the petitioned review.

Patent Owner 138 East LCD Advancements Limited then filed a Patent Owner Response (Paper 13, “PO Resp.”). Petitioner filed a Reply (Paper 16, “Pet. Reply”). Patent Owner filed a Sur-reply (Paper 19, “PO Sur-reply”). A transcript of an oral hearing held on September 30, 2025, is in the record. *See* Paper 26 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b)(4) and § 318(a). This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to claims 1–10 of the ’082 patent. We conclude Petitioner has demonstrated the unpatentability of claims 1–10.

II. BACKGROUND

A. *Real Parties-in-Interest and Related Proceedings*

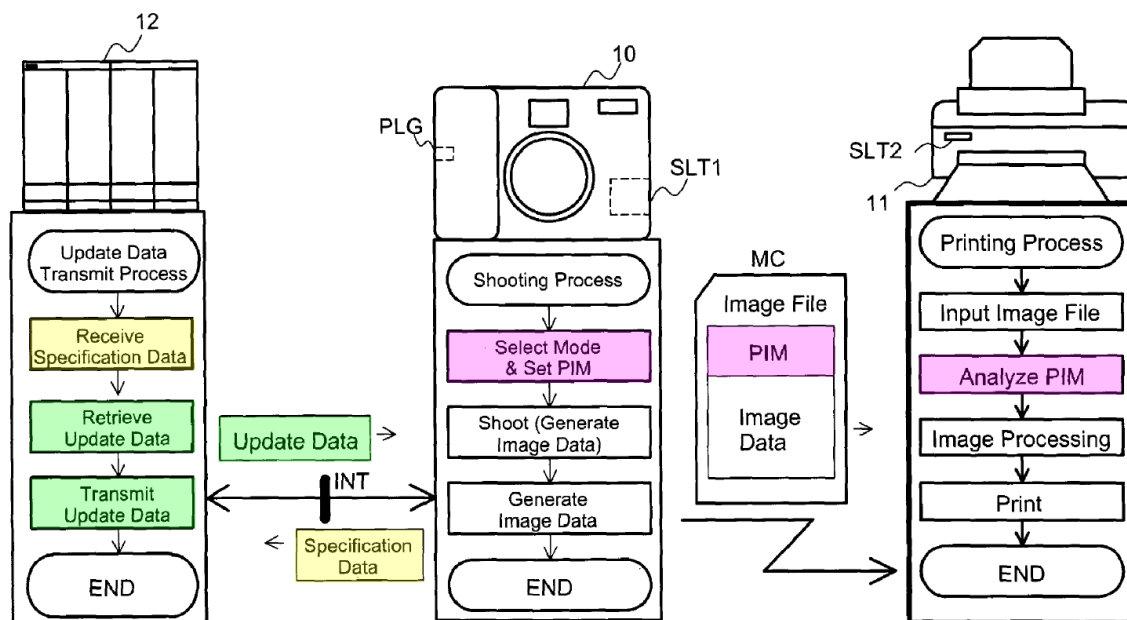
Petitioner identifies itself (Google LLC) as its real party-in-interest. *See* Pet. 83. Patent Owner identifies itself (138 East LCD Advancements Limited) and Longitude Licensing Limited as its real parties-in-interest. *See* Paper 4, 1.

The parties also identify *Longitude Licensing Ltd. v. Google LLC*, Case No. 3:23-cv-03046 (N.D. Cal.), Case No. 24-1202 (Fed. Cir.), as a related matter. *See* Pet. 83; Paper 4, 1.

B. The '082 Patent Specification

The '082 patent is directed to devices and processes for updating image processing control data. *See* Ex. 1001, codes (54) and (57). Figure 1 of the '082 patent is reproduced below, with our color annotations added.

Fig. 1



'082 Patent, Figure 1 (Annotated in Color).

Figure 1 illustrates an image output system including digital still camera 10, color printer 11, and update data storage server 12. *See id.* at 4:58–59, 5:45–52.

Camera 10 generates an image file and transmits it to printer 11 via memory card MC. *See id.* at 5:48–49, 5:52–53, 6:42–57 (Fig. 2). “Two kinds of data are related and stored in the image file” — (1) “image data”; and (2) “image processing control data (hereinafter referred to as ‘PIM parameters’ or ‘PIM’”) (pink).¹ *Id.* at 5:59–62, 6:58–62. The image

¹ The '082 patent does not appear to define the “PIM” acronym, but Patent Owner suggests it means “Print Image Matching.” PO Resp. 3.

processing control data may be set by the user of camera 10, and it “is used to control image processing of the image data that the printer 11 executes.” *Id.* at 5:62–64, 6:14–18, 6:59–60. Exemplary image processing control data includes: “gamma values,” “parameters for contrast and color balance,” and “color space parameters,” as well as “various parameters related to the shooting condition: exposures, white balances, apertures, shutter speeds, and zoom settings.” *Id.* at 6:63–7:2.

In one example, a user of camera 10 can set an image processing mode that defines the PIM to be used when an image file is generated. *See id.* at 8:62–9:3 (Figs. 6A–6B). Exemplary image processing modes include “Standard”, “Portrait”, “Landscape”, and “Sunset.” *Id.* at 8:66–9:2.

Figure 7 of the '082 patent is reproduced below.

Fig. 7

Preset No.	Parameters				Suitable Situations
	Gamma Correction	Color Space	Contrast	Color Balance	
1	OFF	NTSC	Standard	Standard	Standard
2	1.2	sRGB	Slightly Lower	Standard	Portrait
3	0.9	sRGB	Slightly Higher	Standard	Landscape
4	1.1	NTSC	Standard	OFF	Sunset

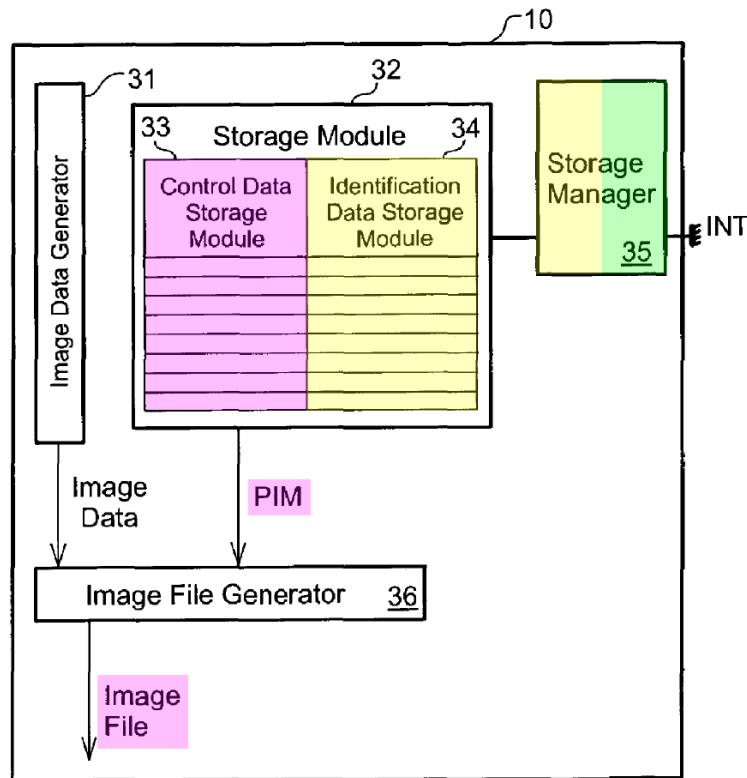
'082 Patent, Figure 7.

Figure 7 “shows an example of the parameters of the PIM” (gamma correction, color space, contrast, and color balance) that respectively correspond to the Standard, Portrait, Landscape, and Sunset processing modes. *Id.* at 9:4–10.

Camera 10 also communicates with server 12 through network INT to update the image processing control data stored on the camera. *See id.* at 5:50–57, 6:26–35. In particular, camera 10 sends “specification data” (yellow in Figure 1 above) to server 12, which “includes predetermined information that specifies the update data to be sent,” and “may include a part of the PIM, or identification data to identify the PIM.” *Id.* at 6:26–31. Server 12 “retrieves the update data [(green)] according to the received specification data and determines the update data,” and transmits the update data to camera 10. *Id.* at 6:31–35.

Figure 3 of the '082 patent shows the function blocks of camera 10 (*see id.* at 4:62–63, 7:19–23), and is reproduced below with our color annotations added.

Fig.3



'082 Patent, Figure 3 (Annotated in Color).

Figure 3 illustrates camera 10 including control data storage module 33 that “stores the PIMs” (pink). *See id.* at 7:27–29. When image data generator 31 records image data, image file generator 36 generates an image file containing the recorded image data and its related PIM, for outputting to printer 11. *See id.* at 7:29–32, Fig. 1 (illustrating “Image File” including “Image Data” and “PIM”).

Camera 10 further includes storage manager 35 (yellow and green) which “manages the PIMs stored in the control data storage module 33 by storing update data” (green) received from server 12 via network INT, utilizing “identification data” stored in module 34 (yellow) as the specification data that identifies the PIM to be updated, as described above. *See id.* at 7:34–61.

C. The '082 Patent Claims

The '082 patent lists ten claims, all of which are challenged in the Petition. *See Ex. 1001, 15:7–16:61; Pet. 1.* They include independent claim 1 and its dependent claims 2–6, and independent claims 7–10.

Independent claim 1 illustratively recites:

1. An image related data generator, connectable to a server, comprising:
 - an image data generator configured to generate image data;
 - a control data storage module pre-storing image processing control data to control image processing of the image data;
 - a relating module configured to relate the image data to the image processing control data; and
 - a storage manager configured to update at least a part of the image processing control data stored in the control data storage, based on specification data, which specifies the image processing control data to be updated,

wherein the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data that are transferred from the image related data generator.

Ex. 1001, 15:8–23.

D. Asserted Prior Art

Petitioner relies on the following three references as prior art against the '082 patent. *See* Pet. 1.

Name	Reference	Exhibit No.
Kuwata	US 2002/0030833 A1	1005
Fisher	US 2001/0025303 A1	1006
Ohga	US 6,788,305 B1	1007

Patent Owner does not dispute that these references are prior art against the '082 patent. *See* PO Resp. *generally*.

E. Asserted Grounds

Petitioner asserts six grounds of unpatentability (*see* Pet. 1):

35 U.S.C. § ²	Reference(s)	Claim(s) Challenged
103(a)	Kuwata, Fisher	1–3, 5, 6, 10
103(a)	Kuwata, Fisher, Ohga	1–6, 10

² Amendments to 35 U.S.C. §§ 102 and 103 enacted by the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”) took effect in 2013. The '082 patent was filed in 2003. *See* Ex. 1001, code (22). Thus, we apply the pre-AIA versions of §§ 102 and 103.

35 U.S.C. § ²	Reference(s)	Claim(s) Challenged
103(a)	Kuwata, Ohga	7
103(a)	Ohga, Kuwata	8
102	Ohga	9
103(a)	Ohga	9

F. Testimonial Evidence

Petitioner relies on expert witness testimony from Robert Stevenson, Ph.D. (Exhibits 1003, 1004, and 2003). Patent Owner relies on expert witness testimony from Nikolaos Papanikolopoulos, Ph.D. (Exhibits 1015, 2001, and 2002).

III. PETITIONER’S GROUNDS OF UNPATENTABILITY

A. Legal Standards

1. Petitioner’s Burden

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). The petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

2. *Anticipation*

A patent claim is unpatentable as anticipated under 35 U.S.C. § 102 “if each and every limitation is found either expressly or inherently in a single prior art reference.” *WhitServe, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 21 (Fed. Cir. 2012). An anticipatory reference must further “disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

3. *Obviousness*

A patent claim is unpatentable under 35 U.S.C. § 103 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). 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 ordinary skill in the art; and (4) objective evidence of nonobviousness, if made available in the record which has not happened here. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner argues a person having ordinary skill in the art pertaining to the ’082 patent “would have had at least a bachelor’s degree in electrical engineering, computer science, or related engineering disciplines, and two years of experience in digital image processing,” wherein “[r]elevant work

experience can substitute for formal education and additional education could substitute for work experience.” Pet. 5; Ex. 1003 ¶ 60.

“Patent Owner does not dispute the level of [ordinary] skill . . . set forth in the Petition.” PO Resp. 14; Ex. 2001 ¶¶ 20–21.

We adopt Petitioner’s unopposed assessment of ordinary skill, as it appears to be consistent with the ’082 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

We interpret the ’082 patent claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). This “includ[es] construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

Petitioner argues “[n]o terms need construction to resolve the unpatentability issues” raised in the Petition. Pet. 6.

Patent Owner contends “[n]o claim term requires express construction” and “the claim terms should receive their ordinary and customary meaning in light of the specification and prosecution history, as understood by a person of ordinary skill in the art.” PO Resp. 11. Patent Owner does not proffer any constructions for particular terms. *See id.*

We discuss the scope of the term “specification data” in claim 1 below in Section III.D.3(b)(v) when comparing the claim with Fisher. We construe the term “image processing control data” in claim 1 below in Section III.E.2(e)(i) when comparing the claim with Ohga.

Otherwise, based on the arguments and evidence presented, we determine no explicit construction is needed to resolve the parties' controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Ground One — Obviousness over Kuwata and Fisher

In Ground One, Petitioner asserts claims 1–3, 5, 6, and 10 of the '082 patent are unpatentable as having been obvious over Kuwata and Fisher. *See* Pet. 1, 6–54. Patent Owner disagrees. *See* PO Resp. 1–6, 9–11, 15–33.

For reasons that follow, we conclude Petitioner has demonstrated claims 1–3, 5, 6, and 10 are unpatentable as having been obvious over Kuwata and Fisher. First we summarize the disclosures of Kuwata and Fisher, then we consider the parties' contentions.

1. Kuwata

Kuwata provides a camera to generate "an image file that can correctly reproduce image data at a predetermined output device" such as a printer or a display, with "optimal image output results according to a paired-combination of the [camera] and output device, taking into consideration their respective image processing characteristics." Ex. 1005, code (57), ¶¶ 1–2. Figure 4 of Kuwata is reproduced below.

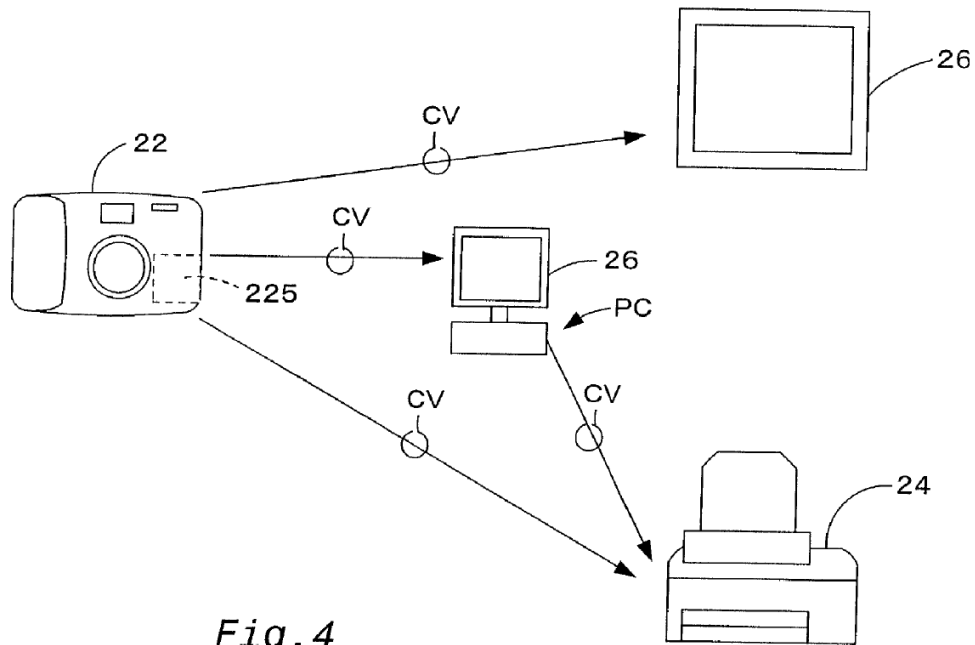


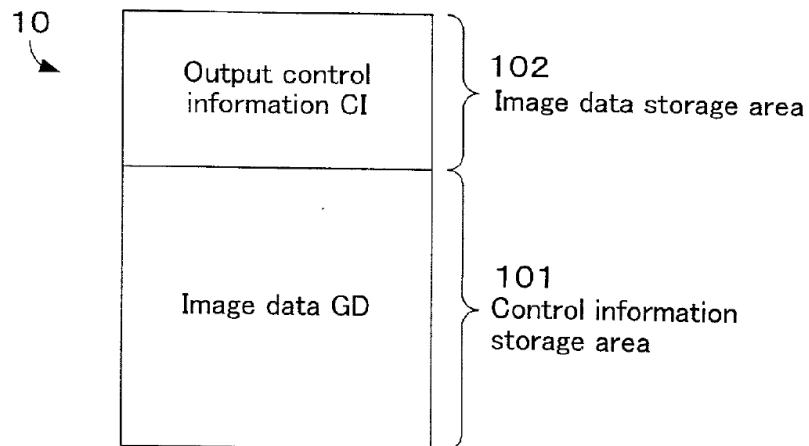
Fig. 4

Kuwata, Figure 4.

Figure 4 illustrates an image data output system consisting of digital still camera 22 that generates image files, and image output devices such as printer 24 and monitors 26, communicating via cables CV or other means. *Id.* ¶¶ 2, 79–80, 85.

Figure 1 of Kuwata illustrates an image file produced by camera 22 to be sent to an output device, and is reproduced below. *See id.* ¶¶ 66, 68, 79.

Fig. 1



Kuwata, Figure 1.

Figure 1 is a conceptual diagram showing the internal structure of image file GF / 10, including image data storage area 101 that stores image data GD, and control information storage area 102 that stores output control information CI.³ *See id.* ¶ 66.

“Output control information CI is information that specifies the image output conditions and image output status for an output device so as to be able to obtain the optimum image output results,” accounting for the particular camera and the particular output device being utilized, including “a correct color reproduction.” *Id.* ¶ 67. This information can include “image characteristic related information” such as “parameters related to gamma values or the target color space” as well as “parameters relating to stored color correction” (e.g., shadow points, highlights, brightness, saturation, contrast, color balance adjustment, and sharpness). *Id.* ¶¶ 67, 75.

Camera “manufacturers are best suited to identify the optimal processing settings by observing the results of the [camera] when used with a particular printer” utilizing “a trial and error process,” in order “to reduce the difference in [appearance] between the display image confirmed on a digital still camera monitor and the output image output using an output device such as a printer.” *Id.* ¶¶ 75, 77. In this way, “it is possible to achieve printing results that more accurately reflect the intention of the person who generated the image file,” “without need for separate photo retouching work.” *Id.* ¶ 77. In particular: “[T]he [camera] vendor does the matching once, so thousands of [camera] photographers never have to do it,

³ In Figure 1, the positions of the phrases “Image data storage area” and “Control information storage area” should be switched to match the written description (¶ 66).

yet the photographers can be guaranteed that the results will be optimal for the [camera]-printer pair.” *Id.*

2. *Fisher*

Fisher is directed to a system and method for utilizing ancillary data with a camera, including image template files, text overlay files, image background files, and special program instruction files. *See* Ex. 1006, codes (54) and (57). The system may be implemented “on an distributed computer network like the Internet” so the camera “may then utilize an ancillary data module to access, select, and download the ancillary data files from [a remote] data source for subsequently combining with other captured image data to thereby produce new composite images.” *Id.* at code (57), ¶¶ 2–3, 8.

Fisher’s camera “may perform various on-line management procedures with the ancillary data files” including “any appropriate processes or functionalities.” *Id.* ¶ 10. Thus, the camera’s ancillary data module “may preferably control and coordinate ancillary data management procedures to download various types of ancillary data from various external data sources.” *Id.* ¶ 33. The ancillary data files “may preferably include any appropriate information, data, or instructions to facilitate successful operation of [the] camera.” *Id.* ¶ 34. Thus, exemplary ancillary data module 416 includes download manager 512 that “coordinate[s] the accessing, selecting, downloading, analyzing, and storing of various types of ancillary data files 418 from any appropriate data source” utilizing the Internet. *Id.* at Figs. 4–5, ¶¶ 36–37. “Download manager 512 may then

responsively identify and store the downloaded ancillary data files 418 into” the camera’s memory. *Id.* ¶ 37.

As shown in Figure 7, ancillary data files 418 may include individual sets of data 714 and associated descriptors 712. *Id.* ¶¶ 48–49. “For example, a descriptor 712 may include information regarding the nature of the associated data 714, such [as] a data format or a data type” as well as “information regarding how the associated data 714 is organized, such [as] a data structure.” *Id.* ¶ 53. “[A]ncillary data module 416 may advantageously analyze downloaded ancillary data files 418 using descriptors 712 and other means to thereby update camera menus 424, and otherwise provide current information to a system user for effectively utilizing the ancillary data files 418.” *Id.*; *see also id.* ¶¶ 12, 60 (“A display manager may responsively update camera device menus for display in a camera viewfinder to thereby include any changes in the locally-stored ancillary data files.”).

3. *Claim 1*

Petitioner provides arguments and evidence contending claim 1 is unpatentable as having been obvious over Kuwata and Fisher, including testimony from Dr. Stevenson. *See* Pet. 6–30; Ex. 1003 ¶¶ 65–75, 81–115. Patent Owner opposes. *See* PO Resp. 1–6, 15–29; Ex. 2001 ¶¶ 37–42, 47–68. For the following reasons, we conclude Petitioner has demonstrated claim 1 is unpatentable as having been obvious over Kuwata and Fisher by a preponderance of the evidence.

(a) Petitioner's Unopposed Reliance on Kuwata

Petitioner relies on Kuwata as disclosing various limitations recited in claim 1 which Patent Owner does not oppose. For the following reasons, we conclude these unopposed contentions are supported by a preponderance of the evidence.

The preamble of claim 1 refers in part to “[a]n image related data generator.” Ex. 1001, 15:8–9. Assuming the preamble is limiting, we find Kuwata’s camera 22 is an image related data generator. *See* Ex. 1005, Figs. 4 and 5, ¶¶ 19, 80–81; Ex. 1003 ¶¶ 82–83; Pet. 13–14. We also find Kuwata’s camera 22 “includes ‘I/O’ and ‘wireless’ ports for communicating [with other devices] via wired or wireless channels, but [Kuwata] does not expressly disclose being connectable to a server,” which is further recited in the preamble. Pet. 14; *see* Ex. 1005, Fig. 4, ¶¶ 81, 85; Ex. 1003 ¶ 84.

Claim 1 next recites that the claimed generator comprises “an image data generator configured to generate image data.” Ex. 1001, 15:10. We find Kuwata’s camera 22 correspondingly includes, as shown in Figure 5, optical circuit 221, image obtaining circuit 222, image processing circuit 223, and control circuit 224 that work together to generate image data. *See* Ex. 1005, Fig. 5, ¶¶ 81, 90; Ex. 1003 ¶¶ 92–93; Pet. 19–20.

Claim 1 also recites that the claimed generator comprises “a control data storage module pre-storing image processing control data to control image processing of the image data.” Ex. 1001, 15:11–13. We find Kuwata’s camera 22 correspondingly includes a memory within control circuit 224 that stores preset control parameter values, which are image processing control data to control image processing of the image data. *See* Pet. 20–21; Ex. 1003 ¶¶ 94–97. For example, Kuwata’s preset control

parameter values include output conditions that are optimized for outputting images with particular printer 24 model(s). *See* Ex. 1005, Fig. 4, ¶¶ 13–14, 75, 77, 82–83, 89; Ex. 1003 ¶¶ 87, 95; Pet. 16, 20–21. Further, Kuwata’s camera 22 stores the preset control parameter values in image file GF / 10 generated by the camera, as part of output control information CI, to control the output of printer 24. *See* Ex. 1005, Figs. 1, 8, 9, and 10, ¶¶ 66–67, 82, 88–90, 93, 96, 98, 101, 105, 109, 116; Ex. 1003 ¶ 96; Pet. 21.

Claim 1 further recites that the claimed generator comprises “a relating module configured to relate the image data to the image processing control data.” Ex. 1001, 15:14–15. We find Kuwata’s camera 22 correspondingly includes control circuit 224 which “relates image data GD to output control information CI that includes the selected preset conditions (image processing control data),” and stores the image data with the control information as image file GF / 10. Pet. 22; *see* Ex. 1005, Figs. 1 and 5, ¶¶ 15, 71–73, 80–82, 89–93; Ex. 1003 ¶¶ 98–100.

Claim 1 moreover recites that “the image processing control data is to be used in processing of the image data by an image processing device that receives the image data and the image processing control data that are transferred from the image related data generator.” Ex. 1001, 15:19–23. We find Kuwata’s camera 22 correspondingly creates image file GF / 10 containing image data GD and output control information CI, and transfers image file GF / 10 to printer 24, which then processes image data GD based on output control information CI to print a corresponding image. *See* Ex. 1005, Figs. 1, 4, 9, and 10, ¶¶ 81–85, 93, 98, 101, 103–119; Ex. 1003 ¶¶ 111–114; Pet. 27–30. “For example, the printer ‘executes gamma

correction and matrix operation M’ using ‘control parameters within output control information CI.’” Pet. 28–29; *see* Ex. 1005 ¶ 105; Ex. 1003 ¶ 113.

In short, we find Kuwata’s camera 22 corresponds to the image related data generator recited in claim 1, except Kuwata does not disclose that camera 22 is “connectable to a server” (Ex. 1001, 15:8), or that it includes “a storage manager configured to update at least a part of the image processing control data stored in the control data storage, based on specification data, which specifies the image processing control data to be updated” (*id.* at 15:16–19). Patent Owner does not oppose this finding.

(b) Petitioner’s Opposed Combination of Kuwata and Fisher

(i) The Petition

In the Petition, Petitioner argues that “[m]aking Kuwata’s camera connectable to a server would have been obvious to a [person of ordinary skill in the art] in view of Fisher.” Pet. 14; Ex. 1003 ¶ 84. Petitioner asserts Kuwata and Fisher are both directed to digital cameras, and “Fisher’s camera uses an I/O interface to communicate with ‘an external entity[,] such as an Internet server,’ to ‘download various types of ancillary data files 418 and other information.’” Pet. 14–15 (citing Ex. 1006, Fig. 2, ¶¶ 23, 26–28, 42, 44); Ex. 1003 ¶¶ 84–85.

Petitioner contends a person of ordinary skill in the art would have been motivated to implement Fisher’s server connectivity in Kuwata’s camera to allow it to download ancillary data files “that update camera data ‘to facilitate successful operation’ of the camera and improve outputs on different output devices.” Pet. 15–16 (citing Ex. 1006 ¶¶ 8, 34, 42, 44); Ex. 1003 ¶¶ 86–89. For example, according to Petitioner, this “would have

been desirable to ensure that the camera includes ‘preset conditions’ for a particular printer used by the user to accurately reproduce a captured image.” Pet. 16 (citing Ex. 1005, code (57), ¶¶ 13–14, 75, 77, 82–83, 96, 116); Ex. 1003 ¶¶ 86–87. This would have improved Kuwata’s camera, according to Petitioner, by allowing it to update various preset conditions for printers released after the camera was manufactured or otherwise not already stored in the camera’s memory. *See* Pet. 17, 22–23 (citing Ex. 1005 ¶¶ 6, 11, 75, 77, 102; Ex. 1006 ¶ 8); Ex. 1003 ¶¶ 88, 102.

Petitioner further asserts this modification of Kuwata’s camera in light of Fisher would provide, as recited in claim 1, “a storage manager configured to update at least a part of the image processing control data stored in the control data storage, based on specification data, which specifies the image processing control data to be updated.” Ex. 1001, 15:16–19; *see* Pet. 23–26; Ex. 1003 ¶¶ 103–108. This is because, according to Petitioner, “Fisher’s camera includes an ancillary data module 416 (storage manager) that updates at least a part of the ancillary data files [(418)] (image processing control data) stored in the camera’s memory (control data storage) . . . from data sources, like a server.” Pet. 23 (citing Ex. 1006 ¶¶ 36–37, 44, 55, 57); Ex. 1003 ¶ 103. Further, “[t]he data within [Fisher’s] ancillary data files 418 includes ‘any appropriate information, data, or instructions to facilitate successful operation of camera device 110,’ and correspond to Kuwata’s preset conditions (image processing control data to be updated).” Pet. 23 (citing Pet. 13–19 (§ V.A.4.a); Ex. 1006 ¶¶ 8, 34, 49–50); Ex. 1003 ¶ 103.

Petitioner moreover argues that Fisher’s ancillary data module 416 “downloads an ancillary data file from the Internet server *based on*

specification data” as required by claim 1 (emphasis added), “such as a ‘descriptor’ associated with a ‘respective set of data,’ that corresponds to the user’s selection.” Pet. 23–24 (citing Ex. 1006 ¶¶ 10, 23, 37, 39, 49, 53, 60); Ex. 1003 ¶ 104. Petitioner asserts a person of ordinary skill in the art would have been motivated to implement this updating method in Kuwata’s camera, in order “to update the preset conditions for [camera]-printer pairs stored in memory with new or updated preset conditions.” Pet. 24–25 (citing Pet. 13–19 (§ V.A.4.a); Ex. 1005, code (57), ¶¶ 13–14, 75, 77, 82–83, 89, 96; Ex. 1006 ¶¶ 8, 36–37, 49–50, 53, 55, 57, 59–60); Ex. 1003 ¶¶ 105–108. For example, this would have been known “to account for printers not stored in camera memory (e.g., later-developed printers) or to update the manufacturer-identified preset conditions for printing.” Pet. 25 (citing Ex. 1005 ¶¶ 75, 77; Ex. 1006 ¶ 8); Ex. 1003 ¶ 108.

Petitioner finally asserts this could have been done with a reasonable expectation of success. *See* Pet. 18–19, 26–27 (citing Ex. 1005 ¶¶ 77, 81, 85; Ex. 1006 ¶¶ 8, 23, 30, 44); Ex. 1003 ¶¶ 90–91, 109–110.

(ii) *The Patent Owner Response*

Patent Owner firstly contends Petitioner’s combination of Kuwata and Fisher “would not result in [claim 1] because at least one key limitation is missing from **both** references” — namely, “the limitation of claim 1 ‘configured to update at least a part of the image processing control data . . . **based on specification data.**’” PO Resp. 18–19 (citing *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997)). Patent Owner faults Petitioner’s reliance on Fisher’s “descriptors” of ancillary data files as corresponding to the claimed “specification data.” *See id.* at 19

(citing Pet. 23; Ex. 1006 ¶ 12). Patent Owner asserts claim 1 “ascribes a particular purpose to the ‘specification data,’ which is not just generic data associated with image processing control data,” in that “[t]he claimed specification data ‘specifies the image processing control data to be updated.’” *Id.* (citing Ex. 1001, 1:55–56); *see also* Ex. 1001, 15:18–19 (claim 1 recites “specification data, which specifies the image processing control data to be updated”).

Patent Owner argues “Fisher’s ‘descriptors,’ by contrast, do not specify ‘data to be updated.’” PO Resp. 19–20, 24–25 (citing Ex. 1006 ¶¶ 10, 23, 49, 53; Pet. 23; Ex. 1003 ¶ 104); Ex. 2001 ¶¶ 55–57. Patent Owner explains that Fisher’s descriptors instead “are stored in the ancillary data files themselves and merely describe properties of the ancillary data therein.” PO Resp. 20–22 (citing Ex. 1006, Fig. 7, ¶¶ 49, 53, 59); Ex. 2001 ¶¶ 57–60. Indeed, according to Patent Owner, Fisher’s “retrieval of ancillary data files from an external data source is managed not according to descriptors, but by a ‘Download Manager,’ which is part of a larger ‘Ancillary Data Module.’” PO Resp. 22 (citing Ex. 1006, Fig. 5, ¶ 37); Ex. 2001 ¶¶ 57–60. Patent Owner emphasizes that Fisher’s ancillary data module 416 which includes download manager 512 “is stored in memory *separate from* the ancillary data files [(418)] themselves, which (optionally) include the descriptors,” and Fisher provides “no teaching or suggestion of any overlap or cross-purpose between the descriptors and the downloading of ancillary data files.” PO Resp. 22–24 (citing Ex. 1006, Fig. 4); Ex. 2001 ¶¶ 58–59.

Patent Owner secondly contends “Petitioner fails to meet its burden to show that a [person of ordinary skill in the art] would have been motivated

to combine Kuwata with Fisher.” PO Resp. 19, 26. Patent Owner argues: “Neither Petitioner nor Dr. Stevenson points to any suggestion in Kuwata to look off-camera for preset conditions corresponding to new [camera]/printer pairs.” *Id.* at 26–27 (citing Pet. 25). Patent Owner further asserts “Kuwata *teaches away* from accessing an external server, as Kuwata stresses advantages of a *self-contained* camera that would not need to access an external server” and “Kuwata is directed to enabling standalone printing via direct uploads *without* external dependencies.” *Id.* at 27–28 (citing Ex. 1005 ¶¶ 77); *see id.* at 15–16 (citing Ex. 1005 ¶¶ 75, 77); Ex. 2001 ¶¶ 61–64.

Patent Owner thirdly contends Petitioner fails to demonstrate a reasonable expectation of success in combining Kuwata and Fisher, because “Petitioner fails to address well-known challenges as of the ’082 patent priority date relating to printer drivers needed to match [cameras] with particular printers.” PO Resp. 19, 28–29; Ex. 2001 ¶¶ 65–67.

(iii) *The Petitioner Reply*

Petitioner replies that “the Petition relies on a combination of Kuwata and Fisher” to address the “specification data” of claim 1. Pet. Reply 1, 3 (citing Pet. 15–19, 22–27, 46). In particular, Kuwata allegedly “teaches image processing control data stored in a control data storage because it discloses preset conditions stored in [the camera’s] memory.” *Id.* at 3 (citing Ex. 1005 ¶¶ 82–83, 89). Next, Fisher allegedly “teaches a storage manager configured to update data stored in the camera storage based on specification data, which specifies the data to be updated, because it discloses an ancillary data module that ‘select[s] and download[s]’ ancillary data files from an Internet server.” *Id.* at 3–4 (citing Ex. 1006 ¶¶ 8–13, 44, 55, 57).

Thus, in Petitioner’s view, Patent Owner’s opposition improperly attacks Fisher individually, ignoring its combination with Kuwata. *See id.* at 3 (citing PO Resp. 18–25; *Palo Alto Networks, Inc. v. Centripetal Networks, LLC*, 122 F.4th 1378, 1386 (Fed. Cir. 2024)). Petitioner relatedly argues that the *Motorola* decision cited by Patent Owner is distinguishable from the facts here, and “nothing in *Motorola* precludes an obviousness determination where each limitation would have been obvious based on one or more references, even when a limitation is not explicitly disclosed.” *Id.* at 7–8 (citations omitted).

Petitioner also asserts “Fisher individually discloses . . . the claimed ‘specification data.’” *Id.* at 6 (citing Ex. 1006 ¶¶ 49–50, 53, 57, 58; Ex. 1003 ¶ 107). The Petition allegedly “explains that, in the Kuwata-Fisher combination, it would have been obvious ‘to identify the selected preset conditions to be updated (image processing control data to be updated) with specification data based on Fisher’s teaching of “descriptors” for the “respective set of data” (e.g., preset conditions for a [camera]-printer pair) to be updated from the server.’” *Id.* (citing Pet. 25).

Petitioner next argues that “the Petition only identifies [Fisher’s] ‘descriptor[s]’ as one example of ‘specification data’ and more generally argues that Fisher’s ‘[a]ncillary data module 416 downloads an ancillary data file from the Internet server based on specification data . . . that corresponds to the user’s selection.’” *Id.* at 4–5 (citing Pet. 23; Ex. 1006 ¶¶ 10, 23, 37, 49, 53, 57–58). Petitioner asserts Fisher’s descriptors “‘describe’ their associated ancillary data, as the name ‘descriptor’ suggests.” *Id.* at 5 (citing Ex. 1006 ¶¶ 12, 53, 59). Petitioner alleges Fisher also “discloses a user interactively viewing and selecting ancillary data files

from an Internet server for download,” so “Fisher teaches that the selection and download of ancillary data files is based on descriptors that describe the selected files.” *Id.* at 5–6 (citing Pet. 22–27; Ex. 1006 ¶¶ 23, 44, 53, 57, 59; Ex. 1003 ¶¶ 101–110).

Concerning motivation to combine Kuwata and Fisher, Petitioner argues “Patent Owner attempts to argue teaching away from Kuwata’s silence around downloading data from the Internet, but a teaching away requires that the references *discourage* the claimed combination.” *Id.* at 2, 8 (citing PO Resp. 26–29; *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009); *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)). According to Petitioner: “Mere silence is not discouragement, particularly where a skilled artisan would have recognized several benefits to the combination” as set forth in the Petition. *Id.* at 2, 9 (citing *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 964 (Fed. Cir. 2014)).

As factual support, Petitioner asserts “Kuwata is silent on accessing an external server and does not express any preference on the matter, let alone discourage accessing a server to download additional preset conditions.” *Id.* at 8–9 (citing Ex. 1005 ¶¶ 75, 77). Indeed, Petitioner’s view is that Kuwata’s disclosure “would have *encouraged* looking to Fisher to enable Kuwata’s camera to download new or updated preset conditions from a server,” thereby “allow[ing] users to obtain and store new and updated preset conditions developed after they purchased their camera.” *Id.* at 9–10 (citing Ex. 1003 ¶¶ 87–89; Ex. 1006 ¶ 8; Ex. 1015, 71:17–72:7; Ex. 2001 ¶ 49). Petitioner moreover contends “Kuwata never touts itself as ‘a *self-contained* camera’” as Patent Owner would have it, and Kuwata in fact “discloses that its camera may communicate with several other devices.”

Id. at 10–11 (citing PO Resp. 27; Ex. 1005, Fig. 4, ¶¶ 80–81, 85, 115, 133, 139; Ex. 1015, 73:8–74:1).

Petitioner moreover replies to Patent Owner’s expectation of success argument. *Id.* at 2, 12–14 (citing Pet. 24–27; PO Resp. 28–29; Ex. 1005 ¶¶ 77, 103, 106, 97–115, 118, 133; Ex. 2001 ¶ 66).

(iv) *The Patent Owner Sur-reply*

Patent Owner maintains in reply that Petitioner fails to show Kuwata and Fisher teach, separately or in combination, a storage manager configured to update image processing control data based on specification data per claim 1. *See* PO Sur-reply 3. Patent Owner asserts Fisher’s “‘descriptors’ are the *only* example given in the Petition” for the claimed specification data, and “Petitioner does not show that descriptors or any other information in Fisher are used as specification data” so “it cannot meet its burden to prove that all claim limitations are disclosed in the prior art.” *Id.* at 3–4 (citing *Par Pharm., Inc. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014)). Patent Owner further argues “Petitioner relies on cherry-picked disclosures” to argue Fisher teaches specification data which specifies data to be updated, and a person of ordinary skill in the art “would not understand those disparate” disclosures “to teach downloading *based on* descriptors.” *Id.* at 1, 4–5 (citing Pet. Reply 5–6; Ex. 1006, Figs. 4 and 7, ¶¶ 23, 53, 57, 59).

Concerning motivation to combine Kuwata and Fisher, Patent Owner asserts the law regarding teaching away “is not as rigid as Petitioner suggests.” *Id.* at 5–6. Patent Owner argues that “whether a reference ‘teaches away’ is not dispositive of a motivation to combine, which looks

more broadly at whether a [person of ordinary skill in the art], ‘upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken’ in the claim.” *Id.* at 6 (citing *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017); *Arctic Cat Inc. v. Bombardier Recreational Products Inc.*, 876 F.3d 1350, 1359–63 (Fed. Cir. 2017)).

Patent Owner further asserts “a finding of no motivation to combine references is appropriate where doing so ‘would destroy the basic objective’ of the prior art.” *Id.* (citing *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016)). Patent Owner argues “the ‘basic objective’ of Kuwata is to provide standalone printing via direct uploads to an output source (whether printer, projector, LCD, or PC) *without* external dependencies,” and “[p]erforming the extensive modification of Kuwata needed to enable network communications and match Kuwata’s camera with new, unspecified output sources destroys this basic objective.” *Id.* at 6–7 (citing Ex. 2001 ¶¶ 61–63).

Patent Owner’s sur-reply also addresses reasonable expectation of success. *Id.* at 7–9.

(v) *Analysis and Conclusion*

We conclude a preponderance of the evidence supports Petitioner’s contention that a person of ordinary skill in the art: (1) would have been motivated to combine Kuwata and Fisher to practice the invention of claim 1 without improper hindsight; (2) with a reasonable expectation of success.

Motivation to Combine

First, we find Kuwata's camera 22 employs image processing control data, as claimed, when generating image data. *See supra* Section III.D.3(a) (discussing Petitioner's unopposed reliance on Kuwata). In particular, we find Kuwata's camera 22 employs preset control parameter values, including preset conditions that are optimized for outputting images with particular printer 24 model(s), and stores these preset control parameter values in image files GF / 10 as part of output control information CI. *See id.*

Second, we disagree with Patent Owner's argument and Dr. Papanikolopoulos's testimony that Kuwata teaches away from modifying its camera 22 to access an external server (such as Fisher's Internet-enabled external data source) by stressing advantages of a self-contained camera-printer pair without external dependencies. *See* PO Resp. 15–16, 26–28 (citing Ex. 1005 ¶¶ 75, 77); Ex. 2001 ¶¶ 61–64. The cited disclosures in Kuwata simply do not discuss any advantages arising from a self-contained camera-printer pair without external dependencies, or any disadvantages arising from connecting camera 22 to an Internet server. *See* Ex. 1005 ¶¶ 75, 77. The cited disclosures instead tout the advantages arising from a camera manufacturer (rather than an end user photographer) specifying the image output control information CI for a specific camera-printer pairing, to reduce differences between an image as confirmed by the end user on the camera's display and the image outputted by the printer. *See id.* That advantage, however, has nothing to do with whether camera 22 may or may not communicate with an Internet server.

Indeed, rather than being self-contained as Patent Owner and Dr. Papanikolopoulos would have it, we find Kuwata's camera 22 includes

an I/O port for wired or wireless communication to transmit the camera's image files GF / 10 to various printers 24 and various personal computers (PCs). *See* Ex. 1005, Fig. 4, ¶¶ 81, 85; Ex. 1003 ¶ 84; Pet. 14. Thus, Kuwata allows for and does not discourage communication between camera 22 and an Internet server such as Fisher's external data source. In particular, Kuwata does not detract from the benefits of updating image output control information CI after the camera is manufactured, for example so that the camera can be paired with printers that were not yet on the market when the camera was manufactured. Moreover, Fisher recognizes that "a manufacturer may create various ancillary data files 418, and make the ancillary data files 418 available on a distributed computer network like the Internet for subsequent downloading and utilization by camera device 110." Ex. 1006 ¶¶ 42, 55. That teaching in Fisher dovetails with Kuwata's disclosure concerning camera manufacturers optimizing their cameras with various different printers, supporting Petitioner's combination. *See* Ex. 1003 ¶¶ 84–89, 102–108.

Third, we find Fisher discloses a camera including an ancillary data module that downloads updated ancillary data files from a remote server via the Internet, and those files can "include any appropriate information, data, or instructions to facilitate successful operation of" the camera. Ex. 1006 ¶¶ 33–34, 42, 44, 55; *see* Pet. 14–15, 23–24. We further find that one of Fisher's disclosed purposes for employing such an ancillary data module is to update data files stored on the camera. *See* Ex. 1006 ¶ 53 (ancillary data module 416 may download ancillary data files 418 "to thereby update camera menus 424, and otherwise provide current information to a system user for effectively utilizing the ancillary data files 418"); Pet. 23–24. These

findings are supported by Dr. Stevenson’s testimony, and they are not opposed by contrary testimony from Dr. Papanikolopoulos. *See* Ex. 1003 ¶¶ 84–85, 103–105; Ex. 2001 ¶¶ 52–60.

Based on the foregoing findings (“First,” “Second,” and “Third”), we determine a person of ordinary skill in the art would have been motivated to combine Kuwata and Fisher such that Kuwata’s camera 22 would *update Kuwata’s image processing control data* as recited in claim 1, by downloading the updated data files from an Internet server per Fisher’s teachings. In particular, Dr. Stevenson testifies and we agree that a person of ordinary skill in the art would have done this in order to pair Kuwata’s camera 22 with various printers to achieve optimal results per Kuwata’s teachings (“First” and “Second” above), including printers that were not yet on the market when a particular camera was manufactured. *See* Ex. 1003 ¶¶ 86–89, 102–108; Pet. 15–18, 22–26.

This is true even if (as Patent Owner contends) Fisher’s updated ancillary data files are not themselves “image processing control data” as recited in claim 1. Specifically, even accepting Patent Owner’s premise as an accurate reading of Fisher’s disclosure, it overlooks that Kuwata discloses utilizing image processing control data (“First” above). In this way, the combined teachings of Kuwata (i.e., a camera that utilizes image processing control data when generating images to optimize output of the image data with a printer) and Fisher (i.e., a camera that downloads updated data files from a server via the Internet) lead to the claimed invention. Patent Owner invites us to err “by looking at [Fisher] individually” and separately from Kuwata, because “[t]he question in an obviousness inquiry is whether it would have been obvious to a person of ordinary skill in the art to combine

the relevant disclosures of the two references, not whether each individual reference discloses all of the necessary elements.” *Palo Alto Networks*, 122 F.4th at 1385–86; *see also In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (nonobviousness cannot be established by attacking references individually when unpatentability is based upon a combination of prior art disclosures).

Fourth, we determine a person of ordinary skill in the art, when combining Kuwata and Fisher as described above, would have been motivated further to utilize *specification data to specify the image processing control data to be updated* from the Internet server, as recited in claim 1.

In that regard, we find Fisher discloses utilizing “*descriptors* corresponding to the downloaded ancillary data files to identify relevant information regarding the downloaded ancillary data files” so that Fisher’s camera can update its operation accordingly. Ex. 1006 ¶ 12 (emphasis added), ¶ 59; *see also id.* ¶ 49 (Fig. 7 illustrates ancillary data files 418 as including “individual sets of data 1 (714(a)) through data N (714(c))” wherein “a descriptor 1 (712(a)) through a descriptor N (712(c)) . . . are each preferably associated with a different respective set of data 714”). Fisher also describes how “ancillary data module 416 may advantageously *analyze downloaded ancillary data files 418 using descriptors 712 and other means to thereby update camera menus 424, and otherwise provide current information to a system user for effectively utilizing the ancillary data files 418.*” *Id.* ¶ 53 (emphasis added), Fig. 4 (camera memory 346 includes ancillary data module 416, ancillary data files 418, and camera menus 424), Fig. 7 (ancillary data files 418 include descriptors 712 and data 714).

We agree with Patent Owner’s argument to the extent that Fisher’s foregoing disclosures do not describe utilizing descriptors to specify the ancillary data to be updated from the server *before* the updated data is downloaded. Fisher’s disclosure instead is limited to utilizing descriptors *after* the updated data is downloaded, so the camera can update its operation. Nonetheless, claim 1 in this regard recites only that the storage manager updates data stored in the camera “based on specification data, which specifies the image processing control data to be updated.” Ex. 1001, 15:16–19. Claim 1 does not require, as Patent Owner would have it, utilizing the specification data as part of the process of downloading updated data from a server. *See id.* Claim 1 instead may be satisfied by the camera utilizing the specification data to implement updating the camera’s operations after the updated data is downloaded. *See id.*; *id.* at 15:40–46 (dependent claim 6 adds to claim 1 that “the storage manager sends specification data . . . to the server”). Fisher does that by utilizing its descriptors as specification data specifying the data to be updated on the camera. *See* Ex. 1006 ¶¶ 12, 49, 53, 59 (summarized above). Thus, Patent Owner’s opposition in this regard is unavailing because it relies on unclaimed subject matter concerning the timing of utilizing specification data.

Moreover, even if claim 1 does require utilizing the specification data as part of the process of downloading updated data from a server, we conclude a person of ordinary skill in the art would have been motivated to utilize Fisher’s descriptors to specify Kuwata’s image processing control data to be updated from the Internet server as part of the downloading process. Fisher correspondingly teaches that the purpose of its descriptors is

to identify the updated data that has been downloaded to the camera so the camera can update its operation (*see* Ex. 1006 ¶¶ 12, 49, 53, 59 (summarized above)), and a person of ordinary skill in the art would have known that descriptors also could and would have been utilized prospectively to specify the data to be updated from the Internet server.

This is supported by Dr. Stevenson’s testimony, with which we agree, that this would have been done to coordinate the camera’s accessing and downloading of updated data from the Internet server. *See* Ex. 1003 ¶¶ 103–104, 106–108 (citing Ex. 1006 ¶¶ 8, 10, 23, 34, 36–37, 39, 44, 49–50, 53, 55, 57, 59–60). For example, Fisher describes how “a manufacturer may create *various* ancillary data files” for downloading by the camera. Ex. 1006 ¶ 8 (emphasis added); *id.* ¶¶ 23, 34, 50, 55. Thus, “[t]he on-line management procedures may include any appropriate processes or functionalities” allowing the camera to “*select and download one or more of the ancillary data files*” including wherein “a system user may interactively view, manipulate, select, and download the ancillary data files from the data source.” *Id.* ¶ 10 (emphasis added); *id.* ¶¶ 23, 37, 57.

Petitioner’s combination of Kuwata and Fisher results in utilizing specification data as part of the process of downloading updated image processing control data from a server without improper hindsight, even if Fisher does not disclose that particular usage of its specification data (i.e., its descriptors of updated ancillary data). Namely, Kuwata discloses utilizing image processing control data (“First” above), and Fisher discloses updating a camera’s ancillary data from a server by utilizing descriptors to specify the ancillary data that is updated so the camera can update its operation accordingly (“Fourth” above).

Indeed, obviousness does not require ““some motivation or suggestion to combine the prior art teachings’ [to] be found in the prior art.” *KSR*, 550 U.S. at 407, 415 (“We begin by rejecting the rigid approach of [the TSM standard].”). “A person of ordinary skill is also a person of ordinary creativity, not an automaton” and “in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* at 420–21. Moreover: “In *KSR*, the Supreme Court criticized a rigid approach to determining obviousness based on the disclosures of individual prior-art references, with little recourse to the knowledge, creativity, and common sense that an ordinarily skilled artisan would have brought to bear when considering combinations or modifications.” *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013).

Dr. Papanikolopoulos’s opposing testimony relies on Kuwata allegedly teaching away from accessing an Internet server (*see* Ex. 2001 ¶¶ 61–64), which we have addressed above. Dr. Papanikolopoulos also testifies that Fisher does not disclose utilizing its descriptors as part of the process of downloading updated data from a server (*id.* ¶¶ 55–63), which we also have addressed above.

For all the foregoing reasons, we conclude a person of ordinary skill in the art would have been motivated to combine Kuwata and Fisher to practice the invention of claim 1 without improper hindsight.

Reasonable Expectation of Success

We also determine that a person of ordinary skill in the art would have been able to combine Kuwata and Fisher as set forth above with a reasonable expectation of success.

Dr. Stevenson accordingly testifies, and we agree, that “making Kuwata’s camera connectable to a server, as taught by Fisher” would have been within the level of ordinary skill, “at least because the similarities between Kuwata’s and Fisher’s cameras” relating to communication with other devices make the proposed combination “the use of a known technique implemented in the same way as for other similar devices.” Ex. 1003 ¶¶ 90–91, 109 (citing Ex. 1005 ¶¶ 77, 81, 85; Ex. 1006 ¶¶ 8, 23, 30, 44); *see* Pet. 18–19. Dr. Stevenson further testifies, and we further agree, that a person of ordinary skill in the art “would have recognized that modifying Fisher’s [sic Kuwata’s] digital camera to incorporate the functionality of an ancillary data module that downloads, adds, or updates information, such as [camera]-printer pair information, stored on the camera would have required . . . only conventional techniques for transferring information over a network, as taught by Fisher.” Ex. 1003 ¶ 110 (citing Ex. 1006 ¶¶ 23, 44); *see* Pet. 26–27.

Dr. Papanikolopoulos testifies in opposition that “[p]rinter drivers in 2002⁴] were complex and not always as easy to write” as they are today, and a person of ordinary skill “would have been aware that printer drivers at that time were not typically updated to handle newer camera formats or shooting modes, resulting in challenges in how [to translate] an image printing task with a particular mode to reality.” Ex. 2001 ¶ 66. In support, Dr. Papanikolopoulos cites Kuwata as “deal[ing] with drivers . . . by having the [camera] manufacturer create the drivers for the specific [camera]/printer pair.” *Id.* (citing Ex. 1005, Fig. 10 (element S350), ¶ 77).

⁴ The earliest possible priority filing date for claim 1 of the ’082 patent is May 7, 2002. *See* Ex. 1001, code (30).

Dr. Papanikolopoulos further testifies there were “challenges associated with universal drivers [in 2002], which were intended at least in part to address matching issues with individual drivers,” and “[m]uch of this functionality was developed later.” *Id.* ¶ 67 (citing “Hewlett-Packard’s HP Universal Print Driver for Windows, version 4, Reviewer/Evaluator’s Guide, available at https://h20331.www2.hp.com/Hpsub/downloads/UPD_RG.pdf”).

Dr. Papanikolopoulos’s foregoing testimony is too conclusory, and lacking in documentary support, to be credible. He does not explain why or how the alleged complexities of printer driver technology in 2002 would have called into question the ability of camera manufacturers to specify different output control information CI for different printers, to obtain intended output results without need for separate photo retouching work, as described in Kuwata (which was filed in 2001). *See* Ex. 1005, code (21), ¶¶ 75, 77; Ex. 2001 ¶ 66. “[O]bviousness does not require absolute predictability of success . . . all that is required is a reasonable expectation of success.” *In re Kubin*, 561 F.3d 1351, 1360 (Fed. Cir. 2009).

Moreover, Petitioner’s obviousness theory is premised on modifying Kuwata’s *camera* software to download updated output control information CI from an Internet server, not on modifying Kuwata’s *printer driver* software. Kuwata explains that the CPU of printer 24 “references output control information CI . . . and sets the printing conditions for the printer driver . . . based on output control information CI.” Ex. 1005 ¶ 111, Figs. 5 and 10. Thus, as Petitioner points out, the proposed modification of Kuwata merely changes the output control information CI that Kuwata’s camera provides to Kuwata’s printer driver (which itself is not modified). *See* Pet. Reply 13–14 (“Patent Owner . . . incorrectly premises these

purported issues on Kuwata's *camera* having a printer driver, even though Kuwata describes the printer driver as being located in the *printer*.”).

Dr. Papanikolopoulos's focus on updating printer driver software, rather than updating camera software that sends information to printer driver software, misses the mark set by Petitioner's obviousness theory.

Dr. Papanikolopoulos cites Hewlett-Packard's Universal Print Driver Guide (Version 4), but that document was not entered into the record here. We therefore do not consider it. *See* 37 C.F.R. § 42.6(c) (“Each exhibit must be filed with the first document in which it is cited except as the Board may otherwise order.”). Moreover, Dr. Papanikolopoulos does not explain how the alleged printer driver guide would have called into question Kuwata's disclosure concerning printer driver technology in 2001. *See* Ex. 2001 ¶¶ 67.

For all the foregoing reasons, we conclude a person of ordinary skill in the art would have had a reasonable expectation of success in combining Kuwata and Fisher to practice the invention of claim 1.

(c) Conclusion as to Claim 1

We conclude Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable as having been obvious over Kuwata and Fisher.

4. Claims 2, 3, and 5

Petitioner provides arguments and evidence contending claims 2, 3, and 5 (which depend from claim 1) are unpatentable as having been obvious over Kuwata and Fisher, including testimony from Dr. Stevenson. *See* Pet. 30–41; Ex. 1003 ¶¶ 116–132. Patent Owner argues for patentability of these claims based solely on arguments considered above in the context of claim 1. *See* PO Resp. 31–32; Ex. 2001 ¶¶ 71–72. Therefore, Patent Owner

has waived any other argument. *See* Inst. Dec. 43; Paper 8, 10. We have reviewed Petitioner's arguments and cited supporting evidence concerning these claims in view of the teachings of Kuwata and Fisher, and we conclude Petitioner has shown the subject matter of claims 2, 3, and 5 would have been obvious over Kuwata and Fisher. *See* Pet. 30–41; Ex. 1003 ¶¶ 116–132. Therefore, we adopt Petitioner's arguments as our own in this Decision. *See* Pet. 30–41. Accordingly, we conclude a preponderance of the evidence establishes these claims are unpatentable as having been obvious over Kuwata and Fisher.

5. *Claim 6*

Claim 6 recites:

6. The image related data generator according to claim 1,
wherein
the image data generator is connectable to a server via a
network, and
the storage manager sends specification data which
specifies the image processing control data to be updated,
to the server and receives update data from the server.

Ex. 1001, 15:40–46.

Petitioner provides arguments and evidence contending claim 6 is unpatentable as having been obvious over Kuwata and Fisher, including testimony from Dr. Stevenson. *See* Pet. 41–42; Ex. 1003 ¶¶ 133–134. Petitioner relies on arguments presented against claim 1 as also applying to claim 6. *See* Pet. 41–42.

Patent Owner similarly argues for patentability of claim 6 based on arguments considered above in the context of claim 1. *See* PO Resp. 32–33. For the reasons provided above in the context of claim 1, we conclude

Petitioner’s contentions in these regards are supported by a preponderance of the evidence.

Patent Owner also argues “Fisher nowhere discloses sending any alleged ‘specification data’ from the camera to any data source.”

PO Resp. 33; Ex. 2001 ¶ 73. Patent Owner contends “Fisher nowhere teaches *sending* or *uploading* descriptors” and “Petitioner’s expert conceded during his deposition that he was unaware of any disclosure in Fisher of uploading ancillary data files — and therefore the included descriptors — from Fisher’s camera to another device on the network such as a server.” PO Resp. 33 (citing Ex. 2003, 76:5–77:3); Ex. 2001 ¶ 73.

Petitioner replies that Patent Owner “mischaracterizes” the deposition testimony of Dr. Stevenson. Pet. Reply 26 (citing Ex. 2003, 76:5–77:3). Petitioner also asserts the “obviousness combination for dependent claim 6 relies on sending specification data to a server to *download* preset conditions for a [camera]-printer pair, not *uploading* ancillary data files.” *Id.* (citing Pet. 41–42).

As discussed above in Section III.D.3(b)(v) in relation to claim 1, we have concluded that a person of ordinary skill in the art would have been motivated to utilize Fisher’s descriptors to specify Kuwata’s image processing control data to be updated from the Internet server per Fisher’s teachings, as part of the downloading process. Therefore, on that same basis, we conclude a preponderance of the evidence establishes claim 6 is unpatentable as having been obvious over Kuwata and Fisher.

Dr. Stevenson’s deposition testimony cited by Patent Owner does not alter that conclusion. He was asked: “Are you aware of any disclosure in Fisher of *uploading ancillary data files* from the camera to another

location?” Ex. 2003, 76:5–7 (emphasis added). He answered “it doesn’t appear I relied on Fisher for any sort of uploading that I could find” and “without rereading Fisher, I don’t know if I would be able to answer your question.” *Id.* at 76:8–77:3. Our conclusion of obviousness is premised on uploading Fisher’s *descriptors* to an Internet server, to specify Kuwata’s image processing control data to be updated from the Internet server. Our conclusion is not premised on uploading Fisher’s *ancillary data files* (which are described by the descriptors), which was the focus of Patent Owner’s questioning during Dr. Stevenson’s deposition.

Furthermore, as discussed in Section III.D.3(b)(v) above, our conclusion of obviousness acknowledges that Fisher does not disclose sending its descriptors to an Internet server as part of the process of downloading updated data from a server. We nonetheless conclude that would have been obvious to do, as discussed in Section III.D.3(b)(v) above.

Thus, we conclude a preponderance of the evidence establishes claim 6 is unpatentable as having been obvious over Kuwata and Fisher.

6. Claim 10

Claim 10 is an independent claim directed to a “digital camera” and it recites many limitations that are similar to the “image related data generator” of claim 1, discussed above. *See* Ex. 1001, 15:8–23 (claim 1), 16:33–61 (claim 10). For example, akin to the storage manager of claim 1 that updates image processing control data based on specification data which specifies the data to be updated, claim 10 recites “a memory management module configured to acquire additional image processing control data from an external memory device separate from the digital camera, and to store the

additional image processing control data into [a] control data storage” of the camera. *Id.* at 15:16–19 (claim 1), 16:46–50 (claim 10).

Petitioner provides arguments and evidence contending claim 10 is unpatentable as having been obvious over Kuwata and Fisher, including testimony from Dr. Stevenson. *See* Pet. 42–54; Ex. 1003 ¶¶ 135–165.

Patent Owner argues for patentability of claim 10 based solely on arguments considered above in the context of claim 1. *See* PO Resp. 29–30. For the reasons provided above in the context of claim 1, we conclude Petitioner’s contentions in these regards are supported by a preponderance of the evidence. We further agree with Petitioner’s contention that “claim 10 lacks the ‘specification data’ term recited in claim 1, so Patent Owner’s arguments about specification data do not apply to claim 10.” Pet. Reply 8 (citing PO Resp. 29–30); *see also* PO Sur-reply 9–10 (acknowledging but not disputing Petitioner’s contention).

Patent Owner does not otherwise dispute Petitioner’s contentions concerning claim 10. *See* PO Resp. 29–30; PO Sur-reply 9–10. Therefore, Patent Owner has waived any other argument. *See* Inst. Dec. 43; Paper 8, 10. We adopt Petitioner’s unopposed arguments concerning claim 10 having been obvious over Kuwata and Fisher as our own in this Decision. *See* Pet. 42–54; Ex. 1003 ¶¶ 135–165. Accordingly, we conclude a preponderance of the evidence establishes claim 10 is unpatentable as having been obvious over Kuwata and Fisher.

7. *Conclusion as to Ground One*

We conclude Petitioner has shown by a preponderance of the evidence that claims 1–3, 5, 6, and 10 of the '082 patent are unpatentable as having been obvious over Kuwata and Fisher.

E. *Ground Two — Obviousness over Kuwata, Fisher, and Ohga*

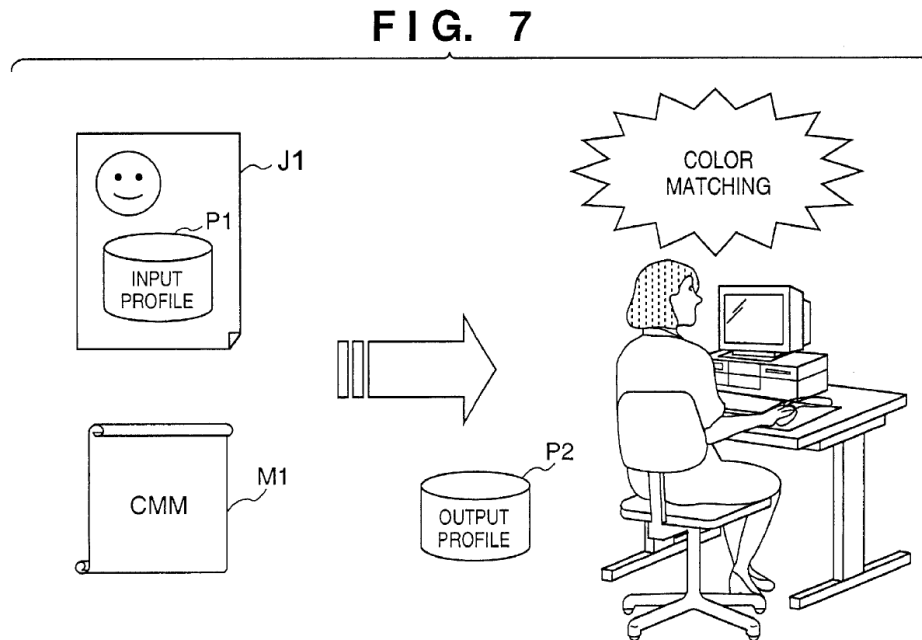
In Ground Two, Petitioner asserts claims 1–6 and 10 of the '082 patent are unpatentable as having been obvious over Kuwata, Fisher, and Ohga. *See* Pet. 1, 54–64. Patent Owner disagrees. *See* PO Resp. 33–50.

For reasons that follow, we conclude Petitioner has demonstrated claims 1–6 and 10 are unpatentable as having been obvious over Kuwata, Fisher, and Ohga. First we summarize the disclosure Ohga, then we consider the parties' contentions.

1. *Ohga*

Ohga provides “a method of executing color matching for image data obtained via a network using a profile of an input device embedded in image data received from a server, a profile of an output device selected by the user, and a color matching module (CMM) of the client.” Ex. 1007, code (57). The CMM is downloaded via a network, in order to achieve consistent color matching results among various users. *See id.*

Figure 7 of Ohga is reproduced below.



Ohga, Figure 7.

Figure 7 illustrates a client computer downloading image data J1 and color management module CMM / M1 from a server (shown in Figure 3), wherein input profile P1 is embedded in image data J1 to identify the input device (e.g., a camera) that was utilized to generate image data J1. *See id.* at 1:13–22, 2:27–42, 2:58–61, 2:65–3:1, 3:6–15, 3:37–47, 4:30–32. The client computer utilizes the CMM to perform color matching, wherein the CMM matches input profile P1 with output profile P2 selected by a user that identifies an output device such as a monitor or a printer for outputting image data J1. *See id.* at 1:13–27, 2:62–64, 3:16–19, 3:48–4:12. The matched characteristics can include “color space characteristics, i.e., the XYZ values of RGB primary colors, gamma coefficient, and XYZ value of white point.” *Id.* at 3:62–65, 4:1–2.

2. *Claim 1*

(a) *The Petition*

Concerning claim 1, Ground Two differs from Ground One only in relying on Ohga if “the Board finds that Kuwata and Fisher do not render obvious updating ‘based on specification data, which specifies the image processing control data to be updated.’” Pet. 56; Ex. 1003 ¶¶ 166–167. In that event, Petitioner contends a person of ordinary skill in the art “would have found this obvious in further view of Ohga.” Pet. 56; Ex. 1003 ¶ 167.

Petitioner asserts “Ohga, like Kuwata, discloses processing image data based on an identified input device (e.g., digital camera) and output device (e.g., printer).” Pet. 56 (citing Ex. 1007, 2:58–3:1, 4:3–12); Ex. 1003 ¶ 168. Petitioner argues Ohga additionally provides a “color-matching-module program” that “‘executes color matching for the image data J1’ based on input and output profiles P1, P2 (image processing control data),” wherein an individual user’s computer “acquires input profile P1 ‘from the downloaded image data’ or downloads it separately based on a ‘designation’ (specification data for input profile) and downloads output profile P2 based on [the] user selecting a ‘given profile name’ (specification data for output profile) from a list.” Pet. 56 (citing Ex. 1007, 3:16–19, 3:37–58, 4:3–12, 4:30–37); Ex. 1003 ¶ 168.

Petitioner then argues a person of ordinary skill in the art “would have found it obvious to combine Kuwata, Fisher, and Ohga so the storage manager provides specification data identifying the desired preset conditions to be updated to the server, for similar reasons as described for” combining Kuwata and Fisher in Ground One. Pet. 57 (citing Pet. 22–27 (§ V.A.4.e)); Ex. 1003 ¶¶ 169–172. In particular, according to Petitioner, a person of

ordinary skill in the art “would have been motivated to provide the server with identification information (specification data) that identifies new or updated preset conditions for a [camera]-printer pair so that the server would efficiently identify and transmit the desired preset conditions to the camera.” Pet. 57–58 (citing Ex. 1007, 3:6–61, 4:41–44); Ex. 1003 ¶¶ 170–172.

(b) The Patent Owner Response

Patent Owner firstly contends Petitioner’s combination of Kuwata, Fisher, and Ohga “would not result in [claim 1] because at least one key limitation is missing from *all* references” — namely, “the limitation of claim 1 ‘configured to update at least a part of the image processing control data . . . ***based on specification data, which specifies the image processing control data to be updated***’ wherein the updated data is “***used to control processing of the image data.***” PO Resp. 35–37 (citing Pet. 56; Ex. 1001, 15:12–13, 15:18–19); Ex. 2001 ¶¶ 82–83. Patent Owner argues “Ohga’s purported ‘specification data’ . . . specifies input and output profiles, but neither Petitioner nor its expert explains how or why these ‘profiles’ disclose image processing control data” which is “used to control processing of the image data” per claim 1. PO Resp. 37–38 (citing Pet. 56; Ex. 1003 ¶ 168; Ex. 1007, 3:16–19, 3:37–58, 4:30–37); Ex. 2001 ¶¶ 84–88. Patent Owner asserts “Ohga itself does not provide any evidence to suggest to a [person of ordinary skill in the art] that the input or output profiles are image processing control data.” PO Resp. 38 (citing Ex. 1007, 3:38–41, 3:48–50, 4:3–5); Ex. 2001 ¶¶ 86–88. Further according to Patent Owner, it is Ohga’s “CMM that contains instructions to actually carry out the mapping from one device’s color space to the other device’s color space,” and “[t]he input and

output profiles are parameters passed *into* the CMM program, but Ohga provides no further information about what kinds of data the profiles contain or how that data is used as part of the CMM program.” PO Resp. 38–39 (citing Ex. 1007, 3:38–41, 3:48–50, 4:3–5); Ex. 2001 ¶¶ 86–88.

Indeed, according to Patent Owner, Ohga’s input and output profiles “are not use[d] to control processing of the image data,” so neither the profiles themselves nor other data identifying the profiles can be “specification data” per claim 1. PO Resp. 38, 39; Ex. 2001 ¶¶ 86–88. Here, Patent Owner cites Ohga’s description that “[t]he format of the [input] profile matches or complies with that specified by the International Color Consortium (ICC).” Ex. 1007, 3:37–47; *see* PO Resp. 39; Ex. 2001 ¶ 87. Patent Owner argues a person of ordinary skill in the art “would have understood that ICC profiles . . . do not themselves control processing of image data” because an ICC input file “does not contain any instructions or other information needed to actually control image processing.” PO Resp. 39–40 (citing Ex. 2004⁵, 3); Ex. 2001 ¶ 87. Further according to Patent Owner: “Actual processing — or control of the underlying image data — requires not only a second profile (an output profile, e.g.) but the instructions for performing the image processing, which are part of [Ohga’s] CMM.” PO Resp. 40 (citing Ex. 2004, 3); Ex. 2001 ¶¶ 86–87.

Patent Owner differentiates between Ohga’s ICC profiles and the exemplary PIM image processing control data disclosed in the ’082 patent, in that “PIMs include software instructions for execution by a printer or

⁵ Exhibit 2004 is White Paper #7 published by the International Color Consortium, titled *The Role of ICC Profiles in a Colour Reproduction System* (Dec. 2004).

other output device that actually control processing of the accompanying image data” whereas ICC profiles merely “describe[] the properties of the specific devices with which they were associated . . . without regard for the instructions that must be executed to properly display image data from an input device on a separate output device.” PO Resp. 40–42 (citing Ex. 1001, 6:14–18; Ex. 2003, 85:25–88:13). Patent Owner further maintains that ICC input and output profiles “are specific to their respective devices” and “are ‘determined independently of any images.’” PO Resp. 42 (citing Ex. 1007, 3:12–13, 3:47–48; Ex. 2003, 93:3–14, 93:22–94:11; Ex. 2004, 4); Ex. 2001 ¶ 88.

Patent Owner secondly contends Petitioner fails to show a person of ordinary skill in the art would have been motivated to combine Kuwata, Fisher, and Ohga. *See* PO Resp. 43. In support, Patent Owner argues there are “incompatibilities between” Ohga’s “rigid, ICC-standardized color management” and Kuwata’s “self-contained camera.” *Id.* at 44. Specifically, Patent Owner asserts Ohga’s process is limited to standardizing color reproduction between input and output devices via the ICC color transformation architecture. *See id.* (citing Ex. 1007, 3:44–46; Ex. 2004, 3); Ex. 2001 ¶ 75. According to Patent Owner, “[t]his ICC-specified architecture is specifically optimized for color transformations . . . and does not easily extend to other visual attributes like material properties, transparency, or dynamic lighting effects.” PO Resp. 44–45; Ex. 2001 ¶¶ 76–78.

Patent Owner moreover asserts Kuwata and Ohga “reflect contradictory intents, such that a [person of ordinary skill in the art] would not have been motivated to combine” them. PO Resp. 45; Ex. 2001

¶¶ 90–93. In support, Patent Owner alleges “Ohga is directed to managing server load and color consistency via client-side CMM downloads” whereas “Kuwata focuses on reliability for [camera]-printer pairs via a self-contained, upload-only design . . . *without* involving servers or client-side processing.” PO Resp. 45; Ex. 2001 ¶¶ 90–93. Patent Owner concludes a person of ordinary skill in the art would have understood that merging these references’ respective workflows “would introduce unnecessary complexity (e.g., managing CMM compatibility) into a system designed to be self-contained” including “reintroducing the same inconsistencies (e.g., varying color results) that Kuwata’s approach avoids.” PO Resp. 45–46; Ex. 2001 ¶¶ 91–92.

(c) *The Petitioner Reply*

Petitioner replies that Patent Owner’s arguments improperly attack Kuwata, Fisher, and Ohga individually rather than their combination. *See* Pet. Reply 19–20. Petitioner asserts the Petition “relies on Kuwata’s preset conditions for the ‘image processing control information,’ not Ohga’s input and output profiles.” *Id.* at 20 (citing Pet. 56–58; Ex. 1005 ¶¶ 82–84). Thus, Petitioner urges that for Ground Two, “it does not matter whether the input and output devices [in Ohga] are image processing control data.” *Id.*

Petitioner alternatively asserts Ohga’s input and output profiles do in fact teach “image processing control data” per claim 1. *See id.* at 15. This is demonstrated, according to Petitioner, by Patent Owner’s characterization that those “profiles are ‘parameters passed *into*’ Ohga’s color matching module(‘CMM’) program that ‘contains instructions to actually carry out

the mapping from one device's color space to the other device's color space.” *Id.* at 15, 16, 17 (citing PO Resp. 38–39, 44).

Petitioner also cites various disclosures in Ohga as indicating input profiles P1 and output profiles P2 “may include information like ‘color space characteristics,’ a ‘gamma coefficient,’ and the ‘XYZ value of white point’” per ICC specifications, which “control *how* Ohga’s CMM program transforms (processes) the image data J1 from the color space of the input device (e.g., digital camera) to the output device (e.g., printer).” *Id.* at 15–16, 18, 21 (citing Ex. 1007, Figs. 6–7, 3:15–18, 3:37–47, 3:62–65, 4:3–12; Ex. 1015, 91:12–92:10; Ex. 2003, 80:6–81:12, 85:25–86:11; Ex. 2001 ¶¶ 75–77, 86–87; Ex. 1004, 3). Petitioner asserts this “matches the ’082 patent’s disclosure of how a printer uses a color space parameter to transform the color space of the image data,” thereby demonstrating Ohga’s input and output profiles are “image processing control data” as recited in claim 1. *Id.* at 16–17 (citing Ex. 1001, Figs. 5A, 5B, 7, and 8 (step S84), 5:59–64, 6:63–66, 7:3–18, 9:6–13, 9:60–10:12; Ex. 1007, 4:3–12; Ex. 2001 ¶ 75; Ex. 2004, 3).

Concerning Patent Owner’s argument that Ohga’s profiles cannot be “‘image processing control data,’ because the information in the profile is independent of other devices and does not in any way specify how to process the image data for rendering on another device,” Petitioner asserts claim 1 “lacks either requirement.” *Id.* at 18 (citing PO Resp. 40, 42; Ex. 1001, Figs. 5A, 5B, 7, and 8, 8:20–23, 8:48–9:10, 9:27–30; Ex. 2001 ¶ 87). Further according to Petitioner, even if Ohga’s “‘device profiles,’ in some embodiments, ‘are “determined independently of any images,”” that “does

not prevent them from being image processing control data.” *Id.* (citing PO Resp. 42; Ex. 2004, 4; Ex. 1001, 6:63–66, 9:27–30).

Concerning motivation to combine Kuwata, Fisher, and Ohga, Petitioner refers back to its arguments in Ground One disagreeing with Patent Owner’s characterization of Kuwata as disclosing “a self-contained camera” that “teaches away from modifying its system with external connectivity.” *Id.* at 21. Petitioner also argues the “incompatibilities” between Kuwata and Ohga alleged by Patent Owner “do not apply to the proposed combination, which relies on Ohga simply for specification data.” *Id.* at 21–22 (citing PO Resp. 44; Pet. 56–58). In particular: “The image processing control data that the specification data specifies is still the new or updated preset conditions, as taught by Kuwata in view of Fisher,” so “it does not matter whether ICC profiles can ‘extend to other visual attributes.’” *Id.* at 22 (citing PO Resp. 44–45).

Petitioner further asserts Kuwata, Fisher, and Ohga “are combinable because Ohga provides implementation details for Fisher’s ‘appropriate respective data-source content review procedures and ancillary-data file download procedures.’” *Id.* (citing Pet. 56–58; Ex. 1006 ¶ 57; Ex. 1007, 3:51–58). And, “Kuwata and Ohga also do not ‘reflect contradictory intents,’ as Patent Owner contends,” because “Kuwata discloses a printer performing a similar type of color transformation as Ohga’s CMM program.” *Id.* at 22–23 (citing PO Resp. 44, 45; Ex. 1005 ¶¶ 105–108; Ex. 1007, 4:3–5).

(d) *The Patent Owner Sur-reply*

Patent Owner’s reply reiterates that Ohga’s ICC profiles are not image processing control data, for the reasons provided in the Patent Owner Response. *See* PO Sur-reply 10–11 (citing Ex. 2004, 3; Ex. 2001 ¶ 75). For example, Dr. Papanikolopoulos testifies that “ICC profiles ‘describe how a specific device reproduces or captures color relative to a device-independent color space’” so they are “specific to a particular device: they describe how that device, such as a camera, printer, or monitor, handles color.” *Id.* Ohga’s ICC profiles are not used, according to Patent Owner, “to control image processing of the image data . . . according to the photographer’s intent” like the PIM data described in the ’082 patent. *Id.* at 11–12 (citing Ex. 1001, 5:62–63, 6:14–18, 8:65–9:7; Ex. 2001 ¶¶ 86–88).

Patent Owner also argues “Petitioner’s likening of PIM data in the ’082 patent to parameters in the ICC profiles is inapt,” because “[t]he fact that a parameter such as gamma value may be common to both does not make the ICC profile ‘image processing control data.’” *Id.* at 12 (citing Pet. Reply 16–19). According to Patent Owner, image processing control data must further contain “information needed to instruct the printer or other output device on how to process image data according to the photographer’s intent . . . such as transformation matrices,” whereas “the ICC profile is a passive source of information . . . merely describ[ing] color properties of a device, independent of any image processing the user wants to carry out.” *Id.* at 12–13 (citing Ex. 1001, 8:65–9:3).

Patent Owner moreover asserts that, “even if Petitioner brings in Ohga only to teach the ‘specification data’ missing from Kuwata and Fisher,” Ohga still “does not cure the deficiencies of the Kuwata/Fisher

combination.” *Id.* at 13. Specifically: “Nothing in the Kuwata/Fisher/Ohga combination teaches using specification data as claimed, that is, to ‘update at least a part of the image processing control data stored in the control data storage.’” *Id.* (citing PO Resp. 42–43).

Patent Owner finally reiterates its opposition to Petitioner’s motivation arguments as set forth in the Patent Owner Response. *See id.* at 13–14.

(e) *Analysis and Conclusion*

We conclude a preponderance of the evidence supports Petitioner’s contention that a person of ordinary skill in the art would have been motivated to combine Kuwata, Fisher, and Ohga to practice the invention of claim 1 without improper hindsight, as follows.

(i) *Claim Construction — “image processing control data”*

Claim 1 recites “*image processing control data* to control image processing of the image data” and that this data “is to be used in processing of the image data by an image processing device” (e.g., a printer). Ex. 1001, 15:11–13 (emphasis added), 15:19–21.

Patent Owner and Dr. Papanikolopoulos construe claim 1 to require that the image processing control data “contains instructions” to control image processing, wherein data that is merely “passed *into*” an image processing control algorithm is not image processing control data. PO Resp. 38–39; *id.* at 40 (“Actual processing — or control of the underlying image data — requires . . . instructions for performing the image processing”); PO Sur-reply 10–13; Ex. 2001 ¶¶ 86–87.

We reject Patent Owner’s claim construction. Beginning with the claim language, claim 1 recites “control data” not “control instructions” as Patent Owner would have it. Ex. 1001, 15:11–13, 15:19–21. Patent Owner’s narrow claim interpretation is not supported by the claim language.

Patent Owner’s narrow claim construction also is inconsistent with the ’082 patent specification. A challenged patent’s specification “is always highly relevant to the claim construction analysis” and “[u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

First, the ’082 patent specification equates “image processing control data” with “PIM parameters” as a representative example. See Ex. 1001, 5:59–62 (“image processing control data (hereinafter referred to as ‘PIM parameters’ or ‘PIM’)”). The ’082 patent specification then describes PIM data as being “*used to control* image processing of the image data that the printer 11 executes.” *Id.* at 5:62–64 (emphasis added). That is, image processing control data does not need to include algorithm instructions, but instead may simply be the input data that controls the algorithm’s results. See also *id.* at 6:14–18 (“The printer 11 . . . executes the image processing of the image data according to the PIM and prints out the image.”).

Second, that understanding is confirmed by the ’082 patent’s description of exemplary PIM parameters (which, again, are identified as a representative example of the claimed “image processing control data”). In particular: “The PIM includes various information such as the following: gamma values of the [camera] 10, setting parameters for contrast and color balance, and color space parameters that identifies the color space where the

image data is defined,” as well as “various parameters related to the shooting condition: exposures, white balances, apertures, shutter speeds, and zoom settings.” *Id.* at 6:63–7:2. All of those exemplary PIM parameters are input data that controls the output of an image processing algorithm, rather than instructions for how to process the data.

Third, the ’082 patent specification describes how “[p]arameters to control the image processing are recorded as combinations of the name of the tag and the parameter value.” *Id.* at 8:58–60 (emphasis added).

Figure 5B of the ’082 patent provides examples of such image processing control parameter tags and values: a gamma value of 2.2; a color space value of NTSC; a contrast value of slightly lower; and a color balance value of standard. *See id.* at 8:57–60, Fig. 5B. Thus, the ’082 patent specification describes image processing control data as input data that controls the output of an image processing algorithm, rather than instructions for how to process the data.

Fourth, the ’082 patent specification states: “*The user can set the PIM through operations of the select button 24*” on camera 10, for example by “*set[ting] the image processing mode*” which “defines the PIM to be used when the image file is generated.” *Id.* at 6:58–62 (Fig. 2), 8:62–9:3 (Figs. 6A and 6B) (emphases added). Exemplary image processing modes include “Standard”, “Portrait”, “Landscape”, and “Sunset.” *Id.* at 8:66–9:2 (Fig. 6B). Figure 7 of the ’082 patent is reproduced below.

Fig. 7

Preset No.	Parameters				Suitable Situations
	Gamma Correction	Color Space	Contrast	Color Balance	
1	OFF	NTSC	Standard	Standard	Standard
2	1.2	sRGB	Slightly Lower	Standard	Portrait
3	0.9	sRGB	Slightly Higher	Standard	Landscape
4	1.1	NTSC	Standard	OFF	Sunset

'082 Patent, Figure 7.

Figure 7 “shows an example of the parameters of the PIM” (gamma correction, color space, contrast, and color balance) that respectively correspond to the Standard, Portrait, Landscape, and Sunset image processing modes. *Id.* at 9:4–10. Thus, the '082 patent specification once again describes PIM / image processing control data as input data that controls the output of an image processing algorithm, rather than instructions for how to process the data.

Fifth, the '082 patent specification further describes how printer 11 receives image data and PIM data from camera 10, and the printer's CPU processes the data to print an image generated by camera 10. *See id.* at 5:46–65 (Fig. 1), 9:11–10:67 (Fig. 8). The printer's processing can utilize the PIM data to: convert the image data from one color space into another color space (*see id.* at 9:11–26); perform gamma correction of the image data (*see id.* at 9:27–30); and adjust the contrast of the image data to reflect the intention of the photographer (*see id.* at 10:17–24). This disclosure suggests that printer 11 already contains instructions for how to process PIM

data, and the printer utilizes PIM data merely as input data to control the output of its processing. *See id.* at 9:11–10:67.

Patent Owner nonetheless asserts that PIMs, “[a]s described in the ’082 patent” specification, “*include software instructions* for execution by a printer or other output device that actually control processing of the accompanying image data.” PO Resp. 40–41 (emphasis added) (citing Ex. 1001, 6:14–18). We disagree. The cited passage states: “The printer 11 receives the image file from the [camera] 10, analyzes it, and extracts the image data and the PIM from the image file. *The printer 11, then, executes the image processing of the image data according to the PIM* and prints out the image.” Ex. 1001, 6:14–18 (emphasis added). In light of all the other ’082 patent specification disclosures of PIM data (“First” through “Fourth” above), we conclude Patent Owner places too much weight on this ambiguous passage as requiring that the PIM data (specifically) contains software instructions for execution by the printer. Further, the ’082 patent specification’s more detailed descriptions of the printer’s image processing operation (“Fifth” above) suggests that the printer already contains instructions for how to process PIM data before it receives the PIM data from the camera.

Patent Owner and Dr. Papanikolopoulos finally argue that data which is “specific to individual input and output devices” cannot be image processing control data per claim 1, because such data is “determined independently of any images” and “does not in any way specify how to process the image data for rendering on another device.” PO Resp. 41–42; PO Sur-reply 10–11; Ex. 2001 ¶ 88. We disagree. The ’082 patent specification instead states: “The image processing control data of the

present invention *can be set according to the image output devices that use the data during image processing.*” Ex. 1001, 4:18–27 (emphasis added). The ’082 patent specification also indicates “*the PIM may be set according to the type of printer 11 being used,*” which “allows the user to use the appropriate PIM according to the type of the printer 11 without increasing the complexity of the process.” *Id.* at 14:55–63 (emphasis added). Thus, contrary to Patent Owner’s position, the ’082 patent specification indicates that the image processing control data of claim 1 may be specific to individual input and output devices.

In conclusion, we construe the “image processing control data” in claim 1 to refer to input data that controls the output of an image processing algorithm, and does not require the data to include instructions for how to process the data. Also, the “image processing control data” can be specific to individual input and output devices.

(ii) *Combination of Kuwata, Fisher, and Ohga*

We conclude a person of ordinary skill in the art would have been motivated to combine Kuwata, Fisher, and Ohga to practice the invention of claim 1 without improper hindsight.

First, applying our claim construction from Section III.E.2(e)(i) above, we find Ohga’s input profile P1 and output profile P2 are both “image processing control data” as recited in claim 1. That is, Ohga’s profiles P1 and P2 are data that are inputted into Ohga’s color matching module CMM to control its image processing, which matches the color space profile of an input device (e.g. a camera per input profile P1) with the color space profile of an output device (e.g. a monitor or printer per output

profile P2). *See* Ex. 1007, code (57), Fig. 7, 1:13–27, 2:58–64, 3:6–19, 3:37–4:12; Ex. 1003 ¶¶ 76–77, 168; *see also* Ex. 2001 ¶¶ 74–76, 80 (Dr. Papanikolopoulos agrees that this is how Ohga operates). Patent Owner’s opposition to this finding is premised on a claim construction of “image processing control data” that we have rejected in Section III.E.2(e)(i) above.

Indeed, Ohga’s CMM matches “color space characteristics, i.e., the XYZ values of RGB primary colors, gamma coefficient, and XYZ value of white point,” which the ’082 patent correspondingly describes as exemplary “image processing control data.” Ex. 1007, 3:62–4:2; *see* Ex. 1001, 5:58–64, 6:63–66, 7:3–18, 9:4–10 (Fig. 7), 9:11–10:67 (Fig. 8). Also, the fact that Ohga’s CMM (not Ohga’s ICC-compliant profiles P1 and P2) contains instructions to carry out the mapping from the input device’s color space to the output device’s color space (*see* PO Resp. 38–42) does not distinguish the profiles from the “image processing control data” of claim 1, because the claimed data is not required to include instructions for how to process the data. Similarly, the fact that Ohga’s input profile P1 and output profile P2 are device specific (*see id.* at 42) does not distinguish the profiles from the “image processing control data” of claim 1, because the claimed data can be specific to individual input and output devices.

Second, we find Ohga discloses utilizing “specification data” that “specifies” its image processing control data, as recited in claim 1. In particular, Ohga describes how a client computer downloads input profile P1, which is “stated in advance” in an HTML document and “passed as a parameter to the CMM program” — “[m]ore specifically, *a designated one of a plurality of profiles on the WWW server S1 is downloaded in*

accordance with the designation of the input profile on the HTML document.” Ex. 1007, 3:37–47 (emphases added); *see* Pet. 56. Ohga also describes how a client computer acquires output profile P2, when “[a] plurality of pieces of information (e.g., names or symbols) of monitor profiles prepared in the server are presented to the user,” such as “profile names,” so the user can select an output profile for downloading from the server. Ex. 1007, 3:48–58 (emphases added); *see* Pet. 56. To the extent Patent Owner disputes these findings, Patent Owner’s opposition is premised on a claim construction of “image processing control data” that we have rejected in Section III.E.2(e)(i) above.

Third, we determine a person of ordinary skill in the art would have been motivated “to combine Kuwata, Fisher, and Ohga so the storage manager [of Kuwata and Fisher per Ground One, even if it lacks updating data based on ‘specification data’] provides specification data [per Ohga] identifying the desired preset conditions [per Kuwata] to be updated to the server [per Fisher and Ohga].” Pet. 57; *see* Ex. 1003 ¶¶ 169–172. In particular, we determine this would have been done “so that the server would efficiently identify and transmit [Kuwata’s] desired preset conditions to the camera.” Pet. 57–58; *see* Ex. 1003 ¶¶ 170–172.

Patent Owner opposes this determination on the basis of alleged “incompatibilities” between Kuwata and Ohga, specifically Dr. Papanikolopoulos’s testimony that Ohga’s ICC-based color matching “does not easily extend to other visual attributes like material properties, transparency, or dynamic lighting effects.” PO Resp. 44–45; *see* Ex. 2001 ¶¶ 74–78. However, as Petitioner notes, Ground Two relies on Ohga only for its teaching of utilizing *specification data* to *specify* image processing

control information (such as Ohga’s ICC-based profiles P1 and P2), not as bodily incorporating ICC profiles into Kuwata. *See* Pet. Reply 21–22. The test for obviousness is not whether the features of one reference (such as Ohga) may be bodily incorporated into the structure or process of the other reference (such as Kuwata), but rather is “what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *see also KSR*, 550 U.S. at 420–21 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton,” and “in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.”).

We discern no reason why a person of ordinary skill in the art would have been deterred from modifying the Kuwata-Fisher camera so that all of Kuwata’s desired preset conditions to be updated (whether color matching or otherwise) are specified by specification data per Ohga, in order to efficiently identify and transmit the preset conditions to be updated, as set forth above.

Patent Owner also argues Kuwata and Ohga “reflect contradictory intents” based on Patent Owner’s contention against Ground One that “Kuwata focuses on reliability for [camera]-printer pairs via a self-contained, upload-only design . . . **without** involving servers or client-side processing.” PO Resp. 45–46; *see* Ex. 2001 ¶¶ 90–93. However, for the reasons provided above in Section III.D.3(b)(v) in relation to Ground One, we conclude Kuwata’s teachings are not so limited, and Kuwata allows for and does not discourage communication between its camera and an Internet server.

For all the foregoing reasons, we conclude a person of ordinary skill in the art would have been motivated to combine Kuwata, Fisher, and Ohga to practice the invention of claim 1 without improper hindsight.

(iii) Conclusion as to Claim 1

We conclude Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable as having been obvious over Kuwata, Fisher, and Ohga.

3. Claims 2–6 and 10

Petitioner provides arguments and evidence contending claims 2–6 and 10 are unpatentable as having been obvious over Kuwata, Fisher, and Ohga, including testimony from Dr. Stevenson. *See* Pet. 58–64; Ex. 1003 ¶¶ 173–188.

Patent Owner opposes solely by referring to arguments we have addressed above in relation to Ground One against claims 1, 6, and 10, and Ground Two against claim 1. *See* PO Resp. 46–50; Ex. 2001 ¶¶ 94–96. For the reasons provided above, we conclude Petitioner’s contentions in these regards are supported by a preponderance of the evidence. For example, we agree with Petitioner’s contention that “claim 10 lacks the ‘specification data’ term recited in claim 1, so Patent Owner’s arguments about specification data do not apply to claim 10.” Pet. Reply 20; *see also* PO Sur-reply 14 (acknowledging but not disputing Petitioner’s contention).

Patent Owner does not otherwise dispute Petitioner’s contentions in Ground Two against claims 2–6 and 10, so any such argument is waived. *See* Inst. Dec. 43; Paper 8, 10. We have reviewed Petitioner’s arguments and cited supporting evidence concerning these claims in view of the

teachings of Kuwata, Fisher, and Ohga, and we conclude Petitioner has shown the subject matter of claims 2–6 and 10 would have been obvious over Kuwata, Fisher, and Ohga. *See* Pet. 58–64; Ex. 1003 ¶¶ 173–188. Therefore, we adopt Petitioner’s arguments as our own in this Decision. *See* Pet. 58–64. Accordingly, we conclude a preponderance of the evidence establishes claim 2–6 and 10 are unpatentable as having been obvious over Kuwata, Fisher, and Ohga.

4. *Conclusion as to Ground Two*

We conclude Petitioner has shown by a preponderance of the evidence that claims 1–6 and 10 of the ’082 patent are unpatentable as having been obvious over Kuwata, Fisher, and Ohga.

F. *Ground Three — Obviousness over Kuwata and Ohga*

In Ground Three, Petitioner asserts independent claim 7 of the ’082 patent is unpatentable as having been obvious over Kuwata and Ohga. *See* Pet. 1, 64–73. Patent Owner disagrees. *See* PO Resp. 50–53.

For reasons that follow, we conclude Petitioner has demonstrated claim 7 is unpatentable as having been obvious over Kuwata and Ohga.

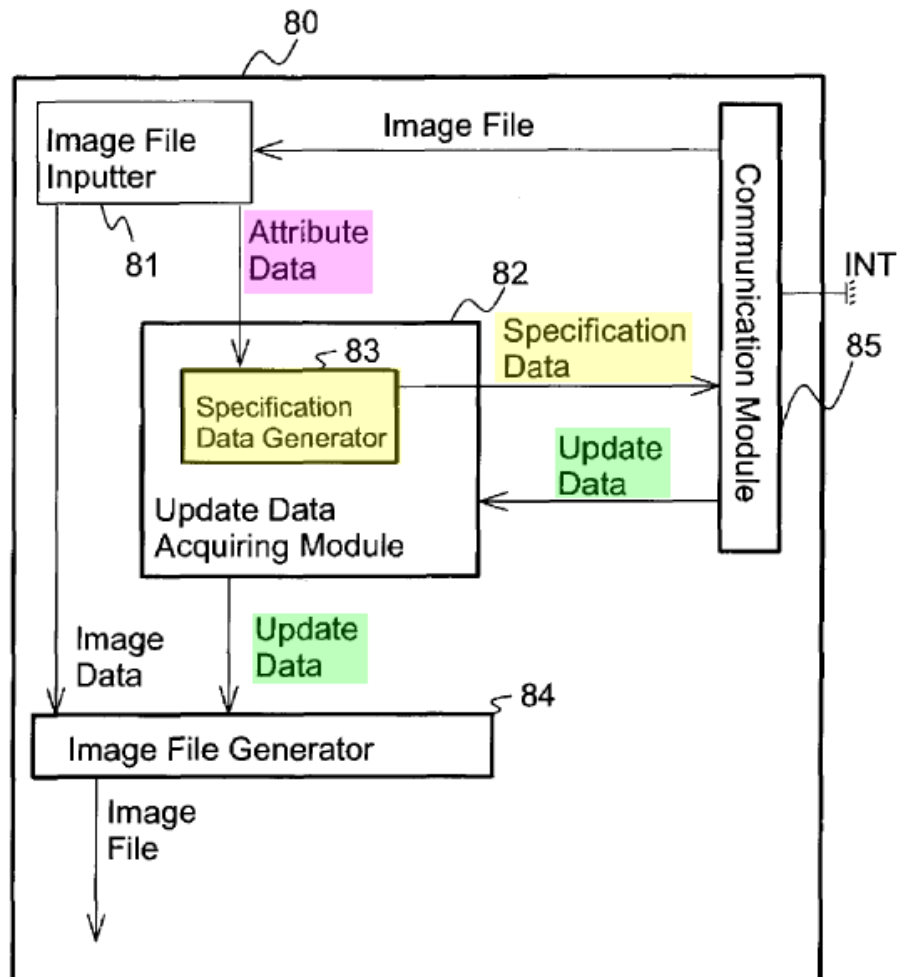
1. *Claim 7*

Whereas claim 1 is directed to “[a]n image related data *generator*” such as a camera, claim 7 is directed to “[a]n image related data *editor*” such as a personal computer. Ex. 1001, 15:8, 15:47 (emphases added); *see id.* at 5:45–49 (Fig. 1), 12:60–67 (Fig. 14). Claim 7 recites that the editor comprises an input module that receives “image data and attribute data related to the image data, the attribute data including at least one of image

processing control data to control image processing of the image data and identification data to identify the image processing control data.” *Id.* at 15:49–54. The editor of claim 7 also comprises an update data acquiring module that is “configured to acquire update data of the image processing control data based on the attribute data from the server.” *Id.* at 15:55–57.

Figure 15 of the ’082 patent illustrates an exemplary image editor, and it is reproduced below with our color annotations added.

Fig. 15



’082 Patent, Figure 15 (Annotated in Color).

Figure 15 illustrates personal computer 80 that, together with camera 10, printer 11, and server 12 shown in Figure 1, forms an image output system. *See id.* at 12:60–67 (Fig. 14), 13:22–23.

Image editor 80 includes image file inputter 81 that receives from camera 10 an image file including image data and attribute data, wherein “specification data [(yellow)] is included in the attribute data [(pink)], and is extracted by the specification data generator 83 in the update data acquiring module 82.” *Id.* at 13:1–6, 13:23–27. “The specification data is similar to that in the first embodiment” shown in Figure 1 and discussed above in Section II.B, “and includes at least one of the PIM and the identification data to identify the PIM” — that is, “predetermined data to specify the update data corresponding to the image data.” *Id.* at 13:6–10. In this way, image editor 80 can acquire “update data” (green) for the PIM, “by sending the specification data recorded in the image file to the UDS server 12,” substantially as described above in Section II.B in connection with camera 10 acquiring update data. *Id.* at 13:13–21, 13:27–31. Then, “image file generator 84 generates the modified image file in which the update data and the image data extracted by the image file inputter 81 are related and stored.” *Id.* at 13:31–33, 13:44–47.

2. *The Petition*

Petitioner argues Kuwata discloses the input module of claim 7. *See* Pet. 67–68; Ex. 1003 ¶¶ 196–197. In support, Petitioner asserts Kuwata’s personal computer (“PC” in Figure 4) is an image editor that “obtains a camera-generated image file GF” which “may include ‘image data GD’ (image data) and ‘output control information CI’ (attribute data related to the

image data).” Pet. 64, 67 (citing Ex. 1005 ¶¶ 85, 96, 115); Ex. 1003 ¶¶ 190, 197. Further according to Petitioner, “Kuwata’s preset conditions including the output control information CI disclose attribute data related to the image data, including image processing control data” and “identification data to identify the image processing control data.” Pet. 67–68 (citing Pet. 20–22 (§§ V.A.4.c–d); Ex. 1005, Fig. 3b, ¶ 74); Ex. 1003 ¶ 197.

Petitioner then argues “Kuwata and Ohga render obvious” the update data acquiring module of claim 7. Pet. 71; Ex. 1003 ¶ 204. Petitioner asserts “Ohga discloses ‘a download unit’ that acquires a profile for the input and output devices (update data of the image processing control data) from a server *based on the devices’ names (attribute data)*.” Pet. 71–72 (emphasis added) (citing Ex. 1007, 3:37–58, 4:30–38, 6:9–15); Ex. 1003 ¶ 206. Thus, Petitioner’s view is that Ohga’s PC “provide[s] a device name (attribute data) to the server to download a profile associated with that device (update data of the image processing control data),” which a person of ordinary skill in the art would have included in the combination of Kuwata and Ohga. Pet. 72 (citing Pet. 67–71 (§ V.C.1.b)); Ex. 1003 ¶ 207.

Petitioner asserts “Ohga, like Kuwata, discloses performing image processing using characteristics of the input and output devices.” Pet. 68 (citing Ex. 1007, 4:3–12); Ex. 1003 ¶ 198. Ohga further provides, according to Petitioner, a personal computer having an input module to receive an input profile P1 from an input device (e.g., a camera) along with an image data file including image data J1. Pet. 68 (citing Ex. 1007, Figs. 3, 4, and 6–8, 2:31–61, 3:6–15, 3:37–45, 4:30–38, 4:63–67); Ex. 1003 ¶ 198. Petitioner argues a person of ordinary skill in the art “would have found it obvious to combine Kuwata and Ohga to provide an update data acquiring

module configured to extract the identification data from the attribute data image file, *send the identification data (e.g., camera and printer names (attribute data)) to the server*, and receive update data from the server to *acquire the preset conditions (image processing control data) associated with a particular [camera]-printer pair based on the attribute data.*” Pet. 72 (emphases added); Ex. 1003 ¶ 207. This would have been beneficial, according to Petitioner, to allow the Kuwata-Ohga image editor “to identify the desired preset conditions for [generating image data] as output control information CI based on, for example, the camera used for image generation and/or the printer used for printing.” Pet. 68–71 (citing Ex. 1005 ¶¶ 70–71, 77, 82, 96; Ex. 1007, 2:47–61, 4:41–44); Ex. 1003 ¶¶ 199–203.

3. The Patent Owner Response

Patent Owner argues the Petition fails to show Kuwata and Ohga combine to render the update data acquiring module of claim 7 obvious. *See* PO Resp. 50.

Patent Owner re-packages its opposition to Grounds One and Two against claim 1 as also applying to Ground Three against claim 7, with the “specification data” of claim 1 replaced by the “attribute data” of claim 7. *See id.* at 50–53; Ex. 2001 ¶¶ 97–102.

Patent Owner also argues Petitioner incorrectly “identifies ‘the devices’ names’ [in Ohga] as the claimed ‘attribute data,’” because the plain language of claim 7 requires that “[a]ny ‘attribute data’ must . . . include ‘at least one of image processing control data to control image processing of the image data and identification data to identify the image processing control data.’” PO Resp. 51 (citing Ex. 1001, 15:49–54); Ex. 2001 ¶ 100. Patent

Owner faults Petitioner for failing to “explain why the ‘devices’ names’ . . . are ‘image processing control data’ or ‘identification data to identify the image processing control data.’” PO Resp. 52. Patent Owner maintains device names “*cannot* be ‘image processing control data’ because the names themselves are not used to control processing of the image data.” *Id.*; Ex. 2001 ¶ 101. Patent Owner further asserts device names cannot be “identification data” per claim 7 “because the names — at best — are used by Ohga to identify device profiles, which are not ‘image processing control data’ either” as Patent Owner argues in Ground Two. PO Resp. 52; Ex. 2001 ¶ 101.

4. *The Petitioner Reply*

Petitioner replies that none of Patent Owner’s re-packaging of its opposition to Grounds One and Two as applying to Ground Three is persuasive for reasons discussed above in connection with Grounds One and Two. *See* Pet. Reply 23, 25.

As to Petitioner’s mapping of the claimed “attribute data” to the prior art, Petitioner asserts the Petition relies on Kuwata’s PC as an image editor that receives “output control information CI, *which includes image processing control data and identification data.*” *Id.* at 23–24 (emphasis added) (citing Pet. 67–68). Petitioner also argues that, “[w]hile Petitioner mapped the attribute data to both [of the claimed ‘image processing control data’ and ‘identification data’], nothing in the claim requires the attribute data to include *both* image processing control data and identification data.” *Id.* at 24–25 (citing Ex. 1001, 3:9–14, 3:19–25).

Petitioner further asserts the Petition explains that Ohga’s device names are “attribute data” including “identification data” per claim 7 because they identify the camera that is used to generate image data and the printer that is used to output the image data, and thereby “identify the preset conditions for that [camera]-printer pair.” *Id.* at 23–24 (citing Pet. 69). According to Petitioner, “[t]hat is all [claim 7] requires for ‘attribute data.’” *Id.* (citing Ex. 1001, 13:6–10).

5. *The Patent Owner Sur-reply*

Patent Owner responds: “Even if Kuwata discloses attribute data . . . Petitioner still fails to show that a [person of ordinary skill in the art] would have combined Kuwata and Ohga to arrive at” the update data acquiring module of claim 7. PO Sur-reply 14–15. “In particular,” according to Patent Owner, neither Kuwata nor Ohga “acquire[s] update data of the image processing control data *based on the attribute data*,” per Patent Owner’s arguments against Grounds One and Two. Ex. 1001, 15:54–56 (emphasis by Patent Owner); *see* PO Sur-reply 14–15.

Patent Owner also argues “Petitioner further fails to show that a [person of ordinary skill in the art] would have been motivated to combine Kuwata and Ohga and would have had a reasonable expectation of success in doing so as” Patent Owner argues in opposition to Ground Two against claim 1. *Id.* at 15.

6. *Analysis and Conclusion*

We conclude a preponderance of the evidence supports Petitioner’s contention that a person of ordinary skill in the art would have been

motivated to combine Kuwata and Ohga to practice the invention of claim 7 without improper hindsight, as follows.

First, Petitioner’s contentions in Grounds One and Two that are carried forward to Ground Three are supported by a preponderance of the evidence for reasons provided above in relation to Grounds One and Two, with the “specification data” of claim 1 replaced by the “attribute data” of claim 7. Patent Owner’s various arguments in opposition to Grounds One and Two are unavailing for the reasons provided above.

Second, to the extent Patent Owner does not dispute Petitioner’s contentions in Ground Three, we adopt Petitioner’s arguments concerning claim 7 having been obvious over Kuwata and Ohga as our own in this Decision. *See* Pet. 64–67, 72–73; Ex. 1003 ¶¶ 189–195, 208–211. Patent Owner has waived any opposition to this determination. *See* Inst. Dec. 43; Paper 8, 10.

Third, we find Kuwata’s PC has the input module of claim 7, including both alternatives of “attribute data.”⁶ *See* Ex. 1001, 15:49–54 (“the attribute data including at least one of . . .”). For the first alternative, we find Kuwata’s PC receives “attribute data related to the image data” including “image processing control data to control image processing of the image data.” *Id.* That is, Kuwata’s PC receives image file GF / 10 from camera 22, and the image file contains image data GD (“image data” in claim 7) as well as output control information CI (“attribute data” in claim 7). *See* Ex. 1005, Figs. 1 and 4, ¶¶ 66–67, 75, 85, 96, 115; Ex. 1003

⁶ Thus, we need not and we do not reach Petitioner’s alternative reliance on the combination of Kuwata and Ohga as teaching the *input module*. *See* Pet. 68–71; Ex. 1003 ¶¶ 198–203.

¶¶ 190, 197; Pet. 64, 67–68. It is undisputed that Kuwata’s output control information CI includes “image processing control data” as recited in the first “attribute data” alternative. *See supra* Section III.D.3(a) (discussing Petitioner’s unopposed reliance on Kuwata in Ground One against claim 1, including that Kuwata’s output control information CI includes preset control parameter values that are “image processing control data”); Ex. 1003 ¶ 197; Pet. 67–68.

For the second alternative, we find Kuwata’s output control information CI also includes “identification data to identify the image processing control data.” Ex. 1001, 15:49–54. In particular, as Petitioner contends, Kuwata’s output control information CI “includes ‘PIM Version information’ and parameter numbers (identification data) that identify corresponding parameter values (image processing control data).” Pet. 68 (citing Ex. 1005, Fig. 3b, ¶ 74); Ex. 1003 ¶ 197. Patent Owner does not oppose this finding. *See* PO Resp. 50–53 (Patent Owner’s opposition to Ground Three).

Fourth, we determine that the combination of Kuwata and Ohga would have motivated a person of ordinary skill in the art to implement an update data acquiring module as recited in claim 7 in Kuwata’s PC. Here, we find Ohga acquires updated image processing control data (i.e., Ohga’s profiles P1 and P2) from a server, based on the name of an input device having a corresponding input profile P1 and the name of an output device having a corresponding output profile P2. *See* Ex. 1007, 3:37–58 (discussed above in Section III.E.2(e)(ii) (“Second”) in relation to Ground Two against claim 1); Ex. 1003 ¶ 206; Pet. 71–72. Indeed, demonstrating this association between Ohga’s device name identification and the corresponding device

profile P1 and P2, Ohga refers to downloading input profile P1 “*in accordance with the designation of the input profile*” (Ex. 1007, 3:37–47 (emphasis added)), and refers to downloading output profile P2 based on a “*profile name*” selected by the user (*id.* at 3:48–58 (emphasis added)).

Due to this association as described in Ohga, we disagree with Patent Owner’s argument that Ohga’s device names do not identify image processing control data, as recited in claim 7. That is, we agree with Petitioner’s assertion that Ohga’s PC “provide[s] a device name (attribute data) to the server to download a profile associated with that device (update data of the image processing control data).” Pet. 72. We acknowledge that, in our Institution Decision, we were “inclined to agree with Patent Owner[’s]” argument concerning Ohga’s device names in relation to Ground Four against claim 8,⁷ “based on the preliminary record.” Inst. Dec. 40–42. Nonetheless, based on the fully developed trial record, we now find Petitioner’s contentions are supported by a preponderance of the evidence as described above. Indeed, Patent Owner agrees that Ohga’s device names “at best . . . are used by Ohga to identify device profiles.” PO Resp. 52.

We further find Kuwata teaches that its output control information CI specifies “the image output conditions and image output status for an output device so as to be able to obtain the optimum image output results” based on “the input device, such as a [camera], and output device, such as a printer.” Ex. 1005 ¶ 67; *see also id.* at code (57) (“An apparatus . . . is provided to

⁷ Claim 8 pertinently recites “update data being associated with at least one of the image processing control data and identification data to identify the image processing control data.” Ex. 1001, 16:5–8.

generate an image file that can correctly reproduce image data at a predetermined output device . . . to obtain an optimal image output result[] according to a paired-combination of the input device and output device” (emphases added)). Moreover: “[Camera] manufacturers are best suited to identify the optimal processing settings by observing the results of the [camera] when used with a particular printer” utilizing “a trial and error process.” *Id.* ¶¶ 75, 77. These teachings, when combined with Ohga’s teachings as discussed above, would have led a person of ordinary skill in the art to modify Kuwata’s PC to acquire updated image processing control data (i.e., Kuwata’s preset control parameter values for a specific camera-printer pair) from a server, based on the names of the camera and printer being paired (per Ohga). *See* Ex. 1003 ¶¶ 198, 206–207; Pet. 68, 72.

For all the foregoing reasons, we conclude Petitioner has shown by a preponderance of the evidence that claim 7 of the ’082 patent is unpatentable as having been obvious over Kuwata and Ohga.

G. Ground Four — Obviousness over Ohga and Kuwata

In Ground Four, Petitioner asserts independent claim 8 of the ’082 patent is unpatentable as having been obvious over Ohga and Kuwata. *See* Pet. 1, 73–79. Patent Owner disagrees. *See* PO Resp. 53–57.

For reasons that follow, we conclude Petitioner has demonstrated claim 8 is unpatentable as having been obvious over Ohga and Kuwata.

1. Claim 8

Whereas claim 1 is directed to “[a]n image related data *generator*” such as a camera, claim 8 is directed to “[a]n update data *transmit apparatus*” such as a server. Ex. 1001, 15:8, 16:1–2 (emphases added); *see*

id. at 5:45–52 (Fig. 1). Claim 8 recites that the transmit apparatus comprises “an update data storage module for storing in advance update data for image processing control data to control image processing of image data, the update data being associated with at least one of the image processing control data and identification data to identify the image processing control data.” *Id.* at 16:3–8.

2. *The Parties’ Arguments*

Petitioner provides arguments and evidence contending claim 8 is unpatentable as having been obvious over Ohga and Kuwata, including testimony from Dr. Stevenson. *See* Pet. 73–79; Ex. 1003 ¶¶ 212–228.

For example, Petitioner argues Ohga discloses or suggests the update data storage module of claim 8. *See* Pet. 73–74; Ex. 1003 ¶¶ 212–215. In particular, Petitioner asserts Ohga’s server (“S1” in Figure 3) is an update data transmit apparatus that stores update data for image processing control data (i.e., Ohga’s profiles P1 and P2). *See* Pet. 73–74 (citing Ex. 1007, Fig. 8, 2:27–41, 2:47–57, 3:4–5, 3:16–29, 3:37–58, 4:3–12, 4:63–67, 7:22–27); Ex. 1003 ¶¶ 213, 215. Petitioner particularly asserts Ohga’s profiles P1 and P2 “are associated with the names of the devices (identification data).” Pet. 74 (citing Ex. 1007, 3:16–19, 3:37–58, 4:3–12, 4:63–67, 7:22–27); Ex. 1003 ¶ 215.

Patent Owner argues the Petition fails to show that Ohga renders the update data storage module of claim 8 obvious, because “Petitioner fails to show that Ohga discloses either ‘update data’ or ‘identification data.’” PO Resp. 53–55 (citing Pet. 74); Ex. 2001 ¶ 103. As to “update data,” Patent Owner argues Ohga’s profiles P1 and P2 are not “image processing

control information” per claim 8, based on arguments we have considered above in Ground Two against claim 1. *See* PO Resp. 53–54; Ex. 2001 ¶ 104. As to “identification data,” Patent Owner argues “the ‘names of the devices’ in Ohga” are insufficient because the named devices are not “image processing control information” per claim 8, based on arguments we have considered above in Ground Three against claim 7. *See* PO Resp. 54–55; Ex. 2001 ¶¶ 105–106.

Patent Owner then argues Petitioner’s contentions concerning the other limitations of claim 8 fall short for the same reasons—that is, Ohga’s profiles P1 and P2 are not “image processing control data” per claim 8, and Ohga’s device names are not “identification data” that identifies image processing control data per claim 8. *See* PO Resp. 55–57; Ex. 2001 ¶¶ 107–110.

Petitioner replies that “Patent Owner’s arguments . . . all depend on its argument that Ohga’s input and output profiles are not image processing control data.” Pet. Reply 25 (citing PO Resp. 53–57). Petitioner argues “Ohga’s input and output profiles disclose image processing control data because they control how Ohga’s CMM program transforms the image data from the color space of the input device to the color space of the output device,” based on arguments we have considered above in Ground Two against claim 1. *Id.* (citing Ex. 1007, 4:3–5; PO Resp. 44).

Patent Owner responds that its “argument is not so limited” as indicated in the Petitioner Reply, because “Patent Owner also noted that Petitioner failed to show any teaching in Ohga of ‘identification data’ in” claim 8 based on “Ohga’s device names.” PO Sur-reply 15–16 (citing Pet. Reply 25; PO Resp. 54–55, 58).

3. *Analysis and Conclusion*

We conclude a preponderance of the evidence supports Petitioner's contention that a person of ordinary skill in the art would have been motivated to combine Ohga and Kuwata to practice the invention of claim 8 without improper hindsight, as follows.

First, Petitioner's contentions in Grounds One, Two, and Three that are carried forward to Ground Four are supported by a preponderance of the evidence for reasons provided above in relation to Grounds One, Two, and Three. Patent Owner's various arguments in opposition to Grounds One, Two, and Three are unavailing for the reasons provided above. Patent Owner does not cite and we do not discern any language in claim 8 that would differentiate claim 8 from claims 1 and 7 as discussed above.

Second, to the extent Patent Owner does not dispute Petitioner's contentions in Ground Four, we adopt Petitioner's arguments concerning claim 8 having been obvious over Ohga and Kuwata as our own in this Decision. *See* Pet. 75–79; Ex. 1003 ¶¶ 216–228. Patent Owner has waived any opposition to this determination. *See* Inst. Dec. 43; Paper 8, 10.

For the foregoing reasons, we conclude Petitioner has shown by a preponderance of the evidence that claim 8 of the '082 patent is unpatentable as having been obvious over Ohga and Kuwata.

H. Grounds Five and Six — Anticipation by and Obviousness over Ohga

Claim 9 of the '082 patent is an independent claim, which recites a method for transmitting update data for image processing control information to a peripheral device. *See* Ex. 1001, 16:20–32.

In Ground Five, Petitioner asserts claim 9 is unpatentable as anticipated by Ohga. *See* Pet. 1, 80. In Ground Six, Petitioner asserts claim 9 is unpatentable as having been obvious over Ohga. *See id.* Petitioner contends Ohga discloses or suggests each limitation of claim 9, based on arguments considered above in connection with Ground Two against claim 1 and Ground Four against claim 8. *See id.* at 80; Pet. Reply 25; Ex. 1003 ¶¶ 229–232.

Patent Owner opposes Grounds Five and Six based solely on arguments considered above in connection with Grounds Two and Four — that is, Ohga’s profiles P1 and P2 are not “image processing control data” per claim 9, and Ohga’s device names are not “identification data” that identifies image processing control data per claim 9. *See* PO Resp. 58–59; PO Sur-reply 2, 15–16; Ex. 2001 ¶¶ 112–116.

We conclude a preponderance of the evidence supports Petitioner’s contentions in Grounds Five and Six, for various reasons provided above in relation to the previous Grounds. In particular, we find Ohga’s server (“S1” in Figure 3) performs the method steps recited in claim 9 in combination with Ohga’s personal computer (“C1” in Figure 3) which corresponds to the “peripheral device” of claim 9. *See, e.g.,* Pet. 73 (“Ohga discloses a server s1 (update data transmit apparatus) connectable to a computer (predetermined peripheral device) via a network connection.”), 80. Thus, we conclude Petitioner has shown by a preponderance of the evidence that claim 9 of the ’082 patent is unpatentable as anticipated by Ohga and as having been obvious over Ohga.

IV. SUMMARY OF CONCLUSIONS

In summary, we determine a preponderance of the evidence establishes claims 1–10 of the '082 patent are unpatentable, as shown in the following table.⁸

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–3, 5, 6, 10	103(a)	Kuwata, Fisher	1–3, 5, 6, 10	
1–6, 10	103(a)	Kuwata, Fisher, Ohga	1–6, 10	
7	103(a)	Kuwata, Ohga	7	
8	103(a)	Ohga, Kuwata	8	
9	102	Ohga	9	
9	103(a)	Ohga	9	
Overall Outcome			1–10	

⁸ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–10 of the '082 patent have been proven by a preponderance of the evidence to be unpatentable; and

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

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