

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ROKU, INC.,  
Petitioner,

v.

FLEXIWORLD TECHNOLOGIES, INC.,  
Patent Owner.

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IPR2021-00714  
Patent 8,989,064 B2

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Before TERRENCE W. MCMILLIN, CHRISTOPHER L. OGDEN, and  
BRENT M. DOUGAL, *Administrative Patent Judges*.

DOUGAL, *Administrative Patent Judge*.

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

## I. INTRODUCTION

### A. *Background and Summary*

Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review challenging the patentability of claims 1–10, 12, and 14–20 (“the challenged claims”) of patent US 8,989,064 B2 (Ex. 1001, “the ’064 patent”). Paper 18 (“Decision” or “Dec.”). Petitioner, Roku, Inc., filed the request for an *inter partes* review (Paper 1, “Petition” or “Pet.”), which Patent Owner, Flexiworld Technologies, Inc., opposed (Papers 13, 15).<sup>1</sup>

After institution, Patent Owner filed a Response (Paper 20, “PO Resp.”), Petitioner filed a Reply (Paper 27, “Reply”), and Patent Owner filed a Sur-reply (Paper 29, “Sur-reply”). An oral hearing was held on July 19, 2022, and a copy of the transcript was entered into the record. Paper 34 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the claims on trial. Having reviewed the arguments of the parties and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–10, 12, and 14 are unpatentable. We also determine that Petitioner has not shown by a preponderance of the evidence that claims 15–20 are unpatentable.

### B. *Related Matters*

The parties identify the following related district court litigations: *Flexiworld Technologies, Inc. v. Roku, Inc.*, No. 6:20-cv-00819-ADA (W.D. Tex.); *Flexiworld Technologies, Inc. v. Amazon.com, Inc.*, No. 6:20-cv-

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<sup>1</sup> Petitioner also filed a Preliminary Reply. Paper 14.

00553 (W.D. Tex.). Pet. 1; Paper 5, 2. We also note the following related *inter partes* reviews: IPR2021-00713, IPR2021-00715.

*C. The '064 Patent*

The '064 patent is entitled “Wireless Controller Wire Connectable to Output Devices such as Televisions for Accessing Digital Content and for Wireless Communication with Mobile Information Apparatus.” Ex. 1001, code (54). The inventors sought to develop a method of outputting digital information from an information apparatus to an output device without requiring users to install and use device-specific drivers. *Id.* at 5:34–37. The '064 patent discusses wireless printing in detail, but also states that the invention is not limited to printing. *Id.* at 1:50–54. “[I]nformation apparatuses include, without limitation, desktop computers, laptop computers, networked computers, palmtop computers (hand-held computers), personal digital assistants (PDAs), Internet enabled mobile phones, smart phones, pagers, digital capturing devices (e.g., digital cameras and video cameras), Internet appliances, e-books, information pads, and digital or web pads.” *Id.* at 1:34–41. “Output devices may include, without limitation, fax machines, printers, copiers, image and/or video display devices (e.g., televisions, monitors and projectors), and audio output devices.” *Id.* at 1:41–44.

The '064 patent describes steps of an output process using a wireless output controller. *Id.* at 5:61–6:4. A user’s device can wirelessly discover an output controller and then connect to and communicate with the output controller, generally through a wireless connection (such as a Bluetooth or IEEE 802.11 wireless connection). *Id.* at 13:3–58, 24:14–67. The user’s device can transmit output data to the output controller, which processes the data for output to the output device. *Id.* at 11:1–13, 26:52–27:45. The output

controller then sends the processed data to the output device, which outputs it to the user. *Id.* at 28:9–12.

As illustrated below, in Figure 2A the output device (220) can include an output controller (230). *Id.* at 12:53–54.

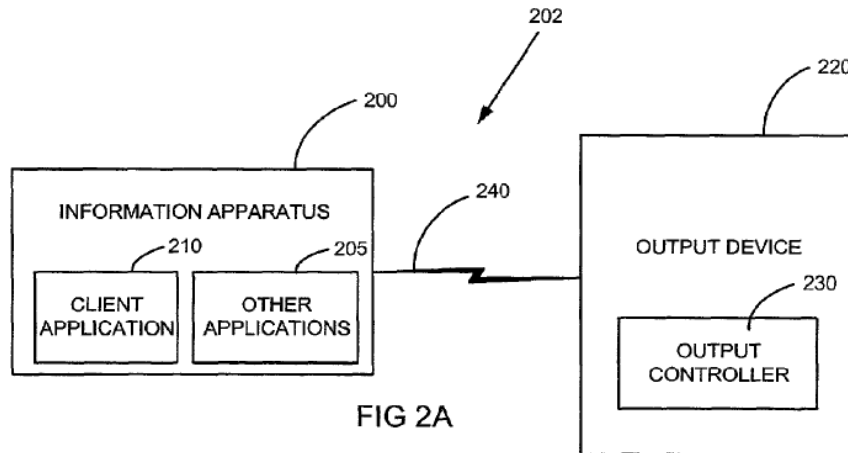


Figure 2A shows an information apparatus (200) with certain applications (210, 205) and an output device (220) including an output controller (230), all drawn schematically. The information apparatus and output device are connected through a communication interface (240) that can be wired or wireless. *Id.* at 13:24–39. Figure 2B, below, shows another embodiment.

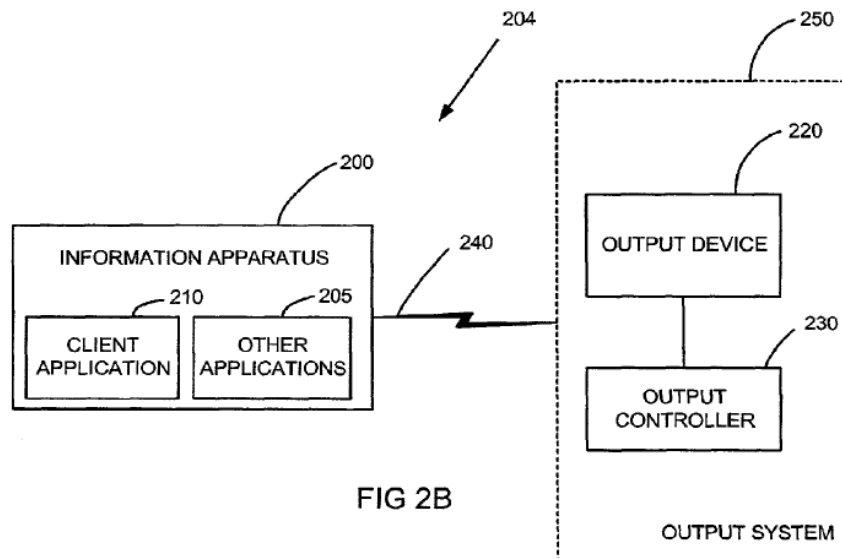


Figure 2B is similar to Figure 2A, but an output system (250) is shown which includes an output device (220) and an output controller (230). The output controller can be externally connected to the output device. *Id.* at 12:56–60. The '064 patent discloses that the various embodiments of the output controller can be implemented with hardware and/or software. *Id.* at 17:47–49.

*D. Illustrative Claim*

Petitioner challenges claims 1–10, 12, and 14–20 of the '064 patent. Claims 1, 5, and 15 are independent. Claim 1 is illustrative:

1. A wireless data output controller method associated with a wireless controller for receiving, over a short range wireless communication, digital content from one or more wireless information apparatus, the wireless controller being externally connectable via a wired connection to an output device for rendering at least part of the digital content received from the one or more wireless information apparatus, the one or more wireless information apparatus being distinct devices from the output device and the wireless controller, the wireless controller including:

a wireless communication unit at the wireless controller for establishing a short range wireless communication with the one or more wireless information apparatus,

a communication interface that is a wired connection and that is externally connectable to the output device for enabling the output device to receive at least part of the digital content that includes video content, audio content, or document content, individually or any combination, via the wireless controller for rendering at least part of the digital content at the output device, the wireless data output controller method comprising:

establishing a wired connection externally between the wireless controller and the output device with the communication interface of the wireless controller;

establishing, by the wireless communication unit and at the wireless controller, the short range wireless communication for wireless communication with the one or more wireless information apparatus;

broadcasting, by the wireless communication unit and at the wireless controller over said short range wireless communication, the availability of the output device or the wireless controller to receive the digital content that includes video content, audio content, or document content, individually or in any combination, from the one or more wireless information apparatus while waiting for the one or more wireless information apparatus to identify the wireless controller or the output device for service;

providing, by the wireless controller and over the short range wireless communication to the one or more wireless information apparatus, at least a device profile that includes at least an identity of the output device or the wireless controller for identification or selection by the one or more wireless information apparatus;

receiving, at the wireless controller and over the short range wireless communication from the one or more wireless information apparatus, an output data stream corresponding to at least part of digital content that includes video content, audio content, or document content, individually or in any combination, for rendering at the output device;

passing at least part of the output data from the wireless controller to the output device over the wired connection, said at least part of the output data corresponding to at least part of the digital content that includes video content, audio content, or document content, individually or in any combination, received from the one or more wireless information apparatus; and

delivering, by the wireless controller, at least part of the output data from the wireless controller to the output device via the wired connection for rendering of at least part of the digital content that includes video content, audio content, or document content, individually or in any combination, at the output device,

the wireless controller being a distinct device from the one or more wireless information apparatus.

Ex. 1001, 41:58–42:56.

## II. ANALYSIS

### A. *Grounds of Unpatentability*

Petitioner asserts the following grounds of unpatentability (Pet. 4), supported by the declaration of Samrat Bhattacharjee, Ph.D. (Ex. 1002):

| Claim(s) Challenged        | 35 U.S.C. § <sup>2</sup> | Reference(s)/Basis                          |
|----------------------------|--------------------------|---------------------------------------------|
| 1–3, 5, 6, 8, 9, 15–18, 20 | 103(a)                   | Ikonen, <sup>3</sup> Beck <sup>4</sup>      |
| 4, 7, 10, 14               | 103(a)                   | Ikonen, Beck, Ortiz <sup>5</sup>            |
| 12, 19                     | 103(a)                   | Ikonen, Beck, Ortiz, Garfunkel <sup>6</sup> |
| 1–4, 15–18, 20             | 103(a)                   | Yamaguchi, <sup>7</sup> Gu <sup>8</sup>     |
| 19                         | 103(a)                   | Yamaguchi, Gu, Garfunkel                    |
| 5–10, 14                   | 103(a)                   | Gu, Yamaguchi                               |
| 12                         | 103(a)                   | Gu, Yamaguchi, Garfunkel                    |

### B. *Legal Standards*

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

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<sup>2</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. Based on the priority claim prior to March 16, 2013, we refer to the pre-AIA version of § 103.

<sup>3</sup> U.S. Patent Pub. 2006/0112414 A1, pub. May 25, 2006. (“Ikonen”) (Ex. 1003).

<sup>4</sup> U.S. Patent 6,604,140 B1, issued Aug. 5, 2003. (“Beck”) (Ex. 1004).

<sup>5</sup> U.S. Patent Pub. 2002/0058499 A1, pub. May 16, 2002. (“Ortiz”) (Ex. 1005).

<sup>6</sup> U.S. Patent 6,615,404 B1, issued Sept. 2, 2003. (“Garfunkel”) (Ex. 1007).

<sup>7</sup> U.S. Patent 7,355,732 B2, issued Apr. 8, 2008. (“Yamaguchi”) (Ex. 1008).

<sup>8</sup> U.S. Patent 6,892,230 B1, issued May 10, 2005. (“Gu”) (Ex. 1009).

A claim is unpatentable as obvious under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of obviousness or nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition’s challenges.

*C. Level of Ordinary Skill in the Art*

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention (POSA). *Id.* at 13, 17. Petitioner asserts that a person of ordinary skill in the art

would have had a bachelor’s degree in computer science, computer engineering, or a similar field and two years of experience developing software. The POSA would be familiar with well-known networking technologies. . . . This description is approximate and additional experience could make up for less education and vice versa.

Pet. 10–11 (citing Ex. 1002 ¶ 10).

Patent Owner does not address the level of ordinary skill. *See generally* PO Resp. We are persuaded that Petitioner’s proposal is consistent with the problems and solutions in the ’064 patent and prior art of record.

We adopt Petitioner’s definition of the level of ordinary skill for the purposes of this Decision.

*D. Claim Construction*

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2021).

The Petition states that no terms require express construction. Pet. 10. Patent Owner does not provide any express constructions or argue that any terms require construction. PO Resp. 10. Petitioner and Patent Owner also note that there were claim construction disputes in the District Court (Pet. 10, PO Resp. 10) and that the District Court has now issued a claim construction order (Prelim. Resp. 7; Ex. 2010).

We agree that no claim term needs to be construed. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms that are in controversy, and only to the extent necessary to resolve the controversy.” (internal quotation omitted)).

*E. 35 U.S.C. § 103(a) – Ikonen, Beck*

Petitioner argues that the combination of Ikonen and Beck renders obvious claims 1–3, 5, 6, 8, 9, 15–18, and 20. Pet. 11–32. Patent Owner argues that, among other things, the Petition fails to show that the prior art teaches all of the limitations of the claims. PO Resp. 15–38. For the reasons expressed below, we determine that Petitioner has not shown by a

preponderance of the evidence that claims 1–3, 5, 6, 8, 9, 15–18, and 20 are unpatentable in view of Ikonen and Beck.

1. *Ikonen*

Ikonen describes an adaptor device to allow a user to use a television as an external display for a mobile device, such as “a mobile station, an electronic game, a PDA-device, a portable computer or a video camera.” Ex. 1003, Abstract, ¶ 4. Ikonen’s system can be seen in Figure 1, reproduced below.

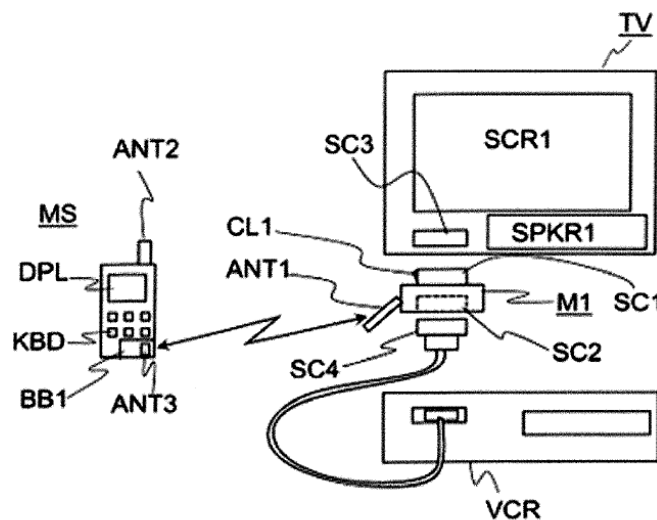


Fig. 1

The basic components of the system, as shown in Figure 1, above, include a mobile station (MS), a television (TV), a video cassette recorder (VCR) and an adapter or link module (M1). *Id.* ¶ 32. The link module (M1) is positioned in the connection between the TV and VCR. *Id.* The link module can provide a wireless link coupling a mobile station to the TV by way of the antenna (ANT1) on the link module and the antenna (ANT3) on the mobile station, which as illustrated can be a mobile phone. *Id.* The antennae can communicate over a Low-Power Radio Frequency (LPRF) connection, such as a Bluetooth connection, or alternatively over a wireless

local area network (WLAN). *Id.* ¶¶ 34, 39. The link module receives video and audio data from the mobile station and then converts that data into formats suitable for the TV. *Id.* ¶ 34.

2. *Beck*

Beck describes a framework for “computing devices to discover and use services over a network.” Ex. 1004, Abstract. In that framework, devices use “middleware” to “use, discover, and advertise services.” *Id.* at 2:47–63. Devices share information about their services, or about remote devices and services, through “service descriptors.” *Id.* at 2:28, 4:45–47, 7:45–49. Beck also describes using a security policy at a “service user” device to “define[] which services may be accessed by software clients on a device.” *Id.* at 4:61–63, 8:31–34.

3. *Claims 1, 5, 15*

Petitioner relies on the link module and related system and method of Ikonen for most of the features of independent claims 1, 5, and 15. Pet. 16–20, 22–31. The Petition argues that “[i]t would have been obvious to add [Beck’s] discovery capabilities to Ikonen’s link module to enable user devices to discover and interact with it.” *Id.* at 14.

Concerning Ikonen, Petitioner argues that the “link module is [the claimed] wireless data output controller,” and that the link module includes a radio block (a wireless communication unit) for wireless connection with a mobile device (i.e. an information apparatus) and the link module is connected by wire to a TV (i.e., an output device). *Id.* at 16–20.

Petitioner further argues that Ikonen teaches a method where the link module wirelessly receives and then transmits data (i.e., receiving, passing and delivering an output data stream) to the TV for rendering at the TV, including video and audio content. *Id.* at 22–23.

Patent Owner argues that, among other things, the Petition does not show how Ikonen teaches the digital content limitations in the claims. PO Resp. 15–38.

*a) Digital Content*

Claim 1 requires, *inter alia*:

a communication interface that is a wired connection and that is externally connectable to the output device for enabling the output device to receive *at least part of the digital content* that includes video content, audio content, or document content, individually or any combination, via the wireless controller for rendering *at least part of the digital content* at the output device.

Ex. 1001, 42:4–11 (emphasis added). Independent claims 5 and 15 include similar limitations. *Id.* at 43:15–20, 45:8–14. Claims 1 and 15 both also require, *inter alia*, delivering at least part of the output data from the wireless controller to the output device for rendering of at least part of the digital content. *Id.* at 42:42–56, 46:8–11.

The Petition argues that the “SCART connection [in Ikonen’s link module] allows the TV to receive for rendering A/V content that was wirelessly received using the link module’s wireless communication unit.” Pet. 19; *see also id.* at 22. The Petition explained earlier that the “link module . . . receives digital content from external user devices via short range wireless communication.” *Id.* at 16. However, in a later discussion, the Petition explains “that the link module . . . perform[s] a digital-to-analog conversion because SCART is an analog standard and the data received from the mobile station is digital.” *Id.* at 28 (discussing claim 8).

Thus, the Petition does not explain how the communication interface (Ikonen’s link module) enables the output device (i.e., Ikonen’s TV) to receive *at least part of the digital content*, via the wireless controller for

rendering *at least part of the digital content* at the output device. Similarly, Petitioner does not explain how Ikonen's link module teaches delivering at least part of the output data from the wireless controller to the output device for rendering of at least part of the digital content. Rather, the Petition acknowledges that Ikonen teaches that the digital content is converted to analog content and that Ikonen's link module is only configured to send analog content to the TV (output device).

Petitioner in reply does not address the above claim limitations or discuss how Ikonen shows a communication interface that enables the output device to receive and render any type of digital content. *See* Reply 2–3. By failing to fully address this claim limitation, Petitioner has not shown how Ikonen teaches this limitation.<sup>9</sup>

Rather than focusing on the above limitations, Petitioner notes that a different limitation in claim 1 “recites passing ‘output data’ that merely ‘correspond[s]’ to digital content.” *Id.* at 2. Petitioner further notes that a different limitation in claim 15 and in a dependent of claim 5 recites “‘conforming’ the ‘digital content into output data.’” *Id.* Thus, Petitioner argues that in this instance the output data does not have to be digital content. Though this limitation read in isolation may not require that the output data be digital content, we cannot read this limitation to modify the above limitations that expressly require that at least part of the digital

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<sup>9</sup> The Petition itself does not actually include the language of the claims. *See* Ex. 1018 (provides the “identifier” for each claim limitation). Though this can be a useful device for dealing with lengthy claims in view of the limited word count for a Petition, it also commonly leads a petitioner to ignore important claim language. In the present case, the Petition does not address the full claim limitation and Petitioner's Reply continues to ignore the full extent of the claim limitation.

content be delivered to the output device for rendering of at least part of the digital content by the output device.

Similarly, Petitioner argues that the Specification uses the term “output data” broadly. *Id.* But again, we cannot ignore the actual claim language in determining what the claims require. Petitioner’s analysis in the Reply lacks any discussion of the claim language noted at the beginning of this section and we see no reason to construe the claims based on an analysis of a single limitation in isolation.

Petitioner also argues that “in the early 2000s, digital content playback devices such as DVD players, DVRs, and Digital Set-Top Boxes generally output analog A/V signals to televisions.” *Id.* (citing Ex 1028 ¶¶ 10–11). Petitioner further argues that “[w]hen the priority applications were filed in January 2001 and January 2002, televisions only had analog video inputs.” *Id.* at 3 (citing Ex. 1028 ¶ 12).

This argument, though acknowledging Petitioner’s position that Ikonen teaches converting digital content to analog, does not show how Ikonen teaches a communication interface that enables the output device to receive and render digital content. So, whether available commercial televisions had analog or digital inputs at the time of the invention does not inform us as to what the claims require.<sup>10</sup>

*b) Conclusion*

After our review of Petitioner’s assertions with respect to independent claims 1, 5, and 15, the supporting evidence, and Patent Owner’s responsive

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<sup>10</sup> Still further, researchers and inventors are commonly aware of the latest developments and the direction of their industry before those features are commercially available. Thus, what was commercially available is of little relevance in this instance.

arguments, we determine that Petitioner has not shown how the combination of Ikonen and Beck teaches all of the limitations of these claims.

4. *Claims 2, 3, 6, 8, 9, 16–18, 20*

Petitioner argues that the combination of Ikonen and Beck renders obvious claims 2, 3, 6, 8, 9, 16–18, and 20, which depend from one of claims 1, 5, or 15. Pet. 24, 27–28, 31–32. Petitioner has not shown how the combination of Ikonen and Beck teaches all of the limitations of these claims for at least the same reasons as the independent claims.

F. *35 U.S.C. § 103(a) – Ikonen, Beck, Ortiz; and Ikonen, Beck, Ortiz, Garfunkel*

Petitioner argues that the combination of Ikonen, Beck, and Ortiz renders obvious dependent claims 4, 7, 10, and 14. Pet. 32–38. Petitioner argues that the combination of Ikonen, Beck, Ortiz, and Garfunkel renders obvious dependent claims 12 and 19. Pet. 38–42.

Petitioner does not rely on Ortiz or Garfunkel in a manner that would overcome the deficiencies identified above with respect to the independent claims. Thus, Petitioner has not shown how the combination of Ikonen, Beck, and Ortiz, or the combination of Ikonen, Beck, Ortiz, and Garfunkel, teaches all of the limitations of these claims for at least the same reasons as the independent claims.

Patent Owner also argues that the Petition does not lay out an actual reason why one of ordinary skill in the art would have combined Ortiz with Ikonen and Beck. PO Resp. 30. Patent Owner argues that the Petition merely makes a generic statement of improvement without explanation. *Id.*

The reason to combine Ortiz with Ikonen is given as follows: “a POSA would have been motivated to use several features that Ortiz discloses in connection with data rendering devices (passcode processing, content

decryption, payment processing) to improve Ikonen's link module which is a similar device for rendering data received from a wireless device." Pet. 34.

The mere listing of features that are present in Ortiz is not a reason why a person of skill in the art would have combined Ortiz with Ikonen. An obviousness determination must include "some articulated reasoning with some rational underpinning to support the legal conclusion." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977,988 (Fed. Cir. 2006)). Thus, for this additional reason Petitioner has not shown how the combination of Ikonen, Beck, and Ortiz, or the combination of Ikonen, Beck, Ortiz, and Garfunkel, teaches all of the limitations of these claims.

*G. 35 U.S.C. § 103(a) – Yamaguchi, Gu*

Petitioner argues that the combination of Yamaguchi and Gu renders obvious claims 1–4, 15–18, and 20. Pet. 42–60. Patent Owner argues that the Petition fails to show that the prior art teaches all of the limitations of the claims and that the Petition fails to provide a sufficient reason to combine Yamaguchi and Gu. PO Resp. 32–51.

*1. Yamaguchi*

Yamaguchi is entitled "Printing Mechanism for Wireless Devices. Ex. 1008, code (54). Figure 1 is reproduced below.

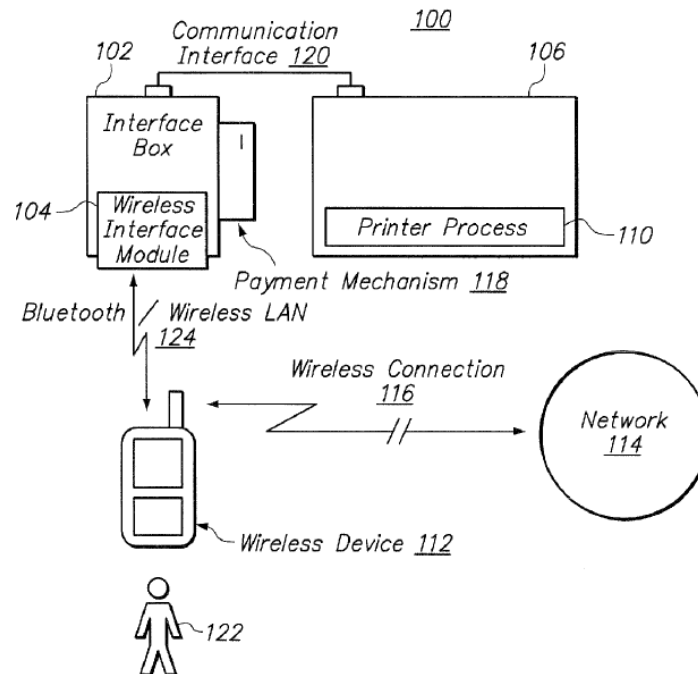


**FIG. 1**

Yamaguchi Figure 1, above, shows an interface box (102) that wirelessly communicates with users' wireless devices (112) to receive electronic document information from the user's wireless devices, and also communicates with a printer (106) to print documents. *Id.* at 2:55–3:9.

The interface box can support wireless communication via IEEE 802.11 or Bluetooth. *Id.* at 3:62–4:9. Yamaguchi's "interface box" can include, *inter alia*, a "web server" component that allows a user to wirelessly upload an electronic file to the interface box through a web browser interface to the web server (Ex. 1008, 5:58–6:12), and using "printer driver" software that converts the file into a "print ready file," such as a PostScript file that the interface box sends to the printer for printing (*id.* at 6:12–15; *see also id.* at 5:13–33, Fig. 3B).

## 2. Gu

Gu is related to a device control process called Universal Plug and Play (UPnP). Ex. 1009, Abstract, 5:20–29. Gu proposes a "device

connectivity and control model [that] provides an integrated set of addressing, naming, discovery and description processes,” which it also refers to as “self-bootstrapping” or UPnP. *Id.* at 2:59–62, 5:20–29. In Gu’s UPnP network connectivity model, users do not have to create persistent relationships with other devices, but can instead do so on an ad hoc basis, e.g., by using web browsers and software on the devices to control those devices. *Id.* at 5:31–40, 6:32–50. Gu’s model includes User Control Points (e.g., computer, cell phone, digital TV), Controlled Devices (e.g., printer, VCR, computer, cell phone), and “Bridges” (components that allow devices without ad hoc communications capability to communicate with User Control Points). *Id.* at 7:33–8:18. Some devices can have the functionality of both User Control Points and Controlled Devices. *Id.* at 8:3–6.

### 3. *Claim 1*

Petitioner relies on Yamaguchi’s printer interface box (102), and the related system and method for most of the features of independent claim 1. Pet. 47–54. In particular, Petitioner relies on Yamaguchi’s interface box (102) for teaching a wireless data output controller, the wireless device (112) for the wireless information apparatus and the printer (106) for the output device. *Id.* at 47. Petitioner relies on Yamaguchi for teaching wireless communication between the interface box (102) and the wireless device (112) and wired communication between the interface box (102) and the printer (106). *Id.* at 47–50, 53–54.

The Petition argues that a POSA would have found it obvious to utilize Gu’s Universal Plug and Play (UPnP) in Yamaguchi’s system as “[a] POSA would have known that UPnP . . . could be used to allow devices to automatically discover Yamaguchi’s printer interface box.” *Id.* at 45.

Patent Owner contests that the prior art teaches all of the limitations of claim 1, and argues that the reason to combine Yamaguchi and Gu is insufficient. PO Resp. 36–51. We address these arguments below.

*a) Broadcasting Availability*

Claim 1 requires, *inter alia*:

broadcasting, by the wireless communication unit and at the wireless controller over said short range wireless communication, the availability of the output device or the wireless controller to receive the digital content . . . from the one or more wireless information apparatus while waiting for the one or more wireless information apparatus to identify the wireless controller or the output device for service.

Ex. 1001, 42:19–28.

The Petition identifies that “the ’064 patent states that UPnP can be used for discovery” (Pet. 51 (citing Ex. 1001, 30:28–38)) and that “Gu explains that discovery in UPnP uses Simple Service Discovery Protocol (SSDP)” (*id.* (citing Ex. 1009, 3:35–47; 19:64–21:15; 10:45–67)). Petitioner argues that the teachings of Gu combined with Yamaguchi provides for “Yamaguchi’s interface box to announce its devices and services” which would then “wait[] to be identified by a wireless device.” *Id.*

The Petition argues that a POSA would have found it obvious to utilize Gu’s Universal Plug and Play (UPnP) in Yamaguchi’s system as “[a] POSA would have known that UPnP . . . could be used to allow devices to automatically discover Yamaguchi’s printer interface box.” *Id.* at 45.

Petitioner argues that UPnP would be integrated into the printer interface box because it provides a number of known benefits, such as interoperability with devices from “the biggest players in computer hardware and software.” *Id.* Petitioner further argues “that UPnP provides not just service discovery but an entire framework for interoperability” *Id.* Further,

Petitioner argues that UPnP “was standardized” and that a POSA would expect that many user devices would be UPnP-compliant. *Id.* Petitioner also argues that “UPnP relies on IP networking . . . which is compatible with Yamaguchi’s IEEE 802.11 wireless LAN technology.” *Id.* at 46 (citing Ex. 1009, 6:13–17; 50:13–25; Fig. 27).

Patent Owner does not contest that the combination of Yamaguchi and Gu teaches broadcasting availability, but does contest the sufficiency of the Petition’s reasons to combine the references. PO Resp. 37–46. Patent Owner argues 1) that Gu’s UPnP framework would not improve Yamaguchi’s interface box; 2) that one of ordinary skill in the art would avoid Gu’s UPnP because of security concerns; and 3) that one of ordinary skill in the art would not use UPnP in view of Yamaguchi’s teaching of Bluetooth. PO Resp. 37–45. We address each argument in turn.

(1) *Yamaguchi’s Interface Box*

Patent Owner argues that “Petitioner never shows that Yamaguchi would be **improved** by Gu.” *Id.* at 37. After making this general allegation, Patent Owner looks to one aspect of the combination, that “Gu could be used to allow devices to automatically discover Yamaguchi’s printer interface box,” and argues that Gu would not improve Yamaguchi in that regard. *Id.* (quoting Pet. 45). Patent Owner argues that “Yamaguchi is concerned with limiting devices that connect to the ‘printer interface box,’” and that Yamaguchi doesn’t have “any problem with users discovering the interface box.” Thus, Patent Owner appears to be arguing that these aspects would not be improved in making the combination.

However, this argument does not address the reasons to combine or the identified benefits in the Petition. For example, the Petition argues as a reason to combine Gu’s UPnP with Yamaguchi’s system that “[a] POSA

would have appreciated that UPnP [disclosed in Gu] had additional benefits because it was standardized and had widespread industry support” and that “[a] POSA would have reasonably expected that devices and software from [the biggest players in computer hardware and software] companies would be UPnP-compliant.” Pet. 45. Despite Patent Owner’s general assertion, this argument does not address the improvements and benefits cited in the Petition such as the benefit of interoperability touted by Petitioner in using UPnP.

Further, it is unclear why Patent Owner is suggesting that the combination would result in removing Yamaguchi’s concern for security. Patent Owner states that Yamaguchi “require[es] that users pay to connect and enter a passcode” and “shield[s] the wireless communication signal” to limit access. PO Resp. 37. But Patent Owner does not argue or assert that the combination would not or could not include these features.

Thus, Patent Owner’s arguments do not take away from Petitioner’s combination or show any deficiencies in the reasons to combine.

## *(2) Security Concerns*

Patent Owner argues that one of ordinary skill in the art would avoid Gu’s UPnP because of security concerns. PO Resp. 38. In particular, Patent Owner argues that “[i]mplementing UPnP from Gu would introduce significant security detriments into Yamaguchi.” *Id.* at 41 (citing Ex. 2034 ¶ 106).

Patent Owner argues that “Yamaguchi expresses security concerns and seeks to avoid unauthorized connections to the interface box.” *Id.* at 38 (citing Ex. 1008, 6:34–7:3). Patent Owner also argues that the ’064 patent is concerned with security. *Id.* at 39 (citing Ex. 1001, 45:33–35). Patent Owner argues and offers evidence that since at least 2001 until now, UPnP has been

known to have various security issues. *Id.* at 39–41 (citing Ex. 2034 ¶¶ 102–106, Exs. 2036–2039). Patent Owner concludes that because of the security concerns, especially with Yamaguchi’s concern for security, one of skill in the art would not be motivated to implement UPnP from Gu into Yamaguchi. *Id.* at 41–42.

However, the ’064 patent itself refutes Patent Owner’s arguments. The ’064 patent teaches that UPnP is a “protocol[] [that] may be used during discovery process 1020.” Ex. 1001, 30:28–29, 31–34; *see also* Reply 12 (discussing same). Patent Owner does not contest that the ’064 patent states that UPnP can be used or that this is evidence in support of Petitioner’s reasons to combine even with the ’064 patent’s asserted concern for security.

Further, Patent Owner’s evidence shows that though many security issues have been identified with UPnP, those security issues largely remain only if users do not update their software to the latest version or install later issued patches. *See, e.g.*, Ex. 2036, 2 (discussing a “downloadable program that will fix the problem for you”); Ex. 2037, 8–9 (discussing vulnerabilities of outdated software); Ex. 2038, 7–8 (suggesting that users should update to the latest firmware to ensure they are protected from known vulnerabilities); 2039, 3–4 (discussing that certain “stacks” of UPnP are not affected and that all of latest versions “shouldn’t be vulnerable to the issue.”). As Dr. Bhattacharjee explains, security issues are routinely discovered with software and patched. Reply 12–13 (citing Ex. 1028 ¶¶ 35–36). Thus, the evidence shows that the security issues Patent Owner identifies are common to computer devices and addressing those issues is within the level of ordinary skill in the art.

Patent Owner’s evidence also shows that UPnP is widely utilized across the industry and has been for some time. *See* Exs. 2036–2039. Prof.

Bhattacharjee also testifies that Patent Owner’s own products in 2004 and today support UPnP. Ex. 1025 ¶¶ 38–39. Thus, the evidence shows that even if there are security risks by using UPnP, the industry has accepted those risks and continues to use the standard.

We do note that Petitioner’s evidence about products introduced by Patent Owner is evidence years later after the invention. However, Patent Owner’s evidence suffers from this same drawback. Exhibits 2037–2039 are all dated over a decade after the effective filing date of the ’064 patent. Ex. 1001, code (60). Exhibit 2036 is dated December 27, 2001, which is almost a year after the first provisional filing relied on by the ’064 patent, but almost a month before the filing of the first non-provisional filing. *Id.* at code (62). Thus, the most relevant evidence of whether one of ordinary skill in the art would have considered UPnP to be too great a security risk for use is the ’064 patent itself, which teaches that it can be used. Ex. 1001, 30:28–29, 31–34.

### (3) *Yamaguchi’s Bluetooth Solution*

Patent Owner argues that “a POSA would not need to look outside Yamaguchi” because Yamaguchi teaches a Bluetooth solution with the purported benefits that Petitioner identified in its reasons to combine, including “a Services Discovery Protocol (SDP)” and “complete interoperability requirements”. PO Resp. 42–43; *see also id.* at 42–44.

Though Yamaguchi teaches Bluetooth, it also teaches 802.11 (Ex. 1008, 4:3–6) and the combination proposed in the Petition would combine Gu’s UPnP with “Yamaguchi’s IEEE 802.11 wireless LAN technology” (Pet. 46 (citing Ex. 1009, 6:13–17; 50:13–25; Fig. 27)). Thus, the mere fact that Yamaguchi also teaches Bluetooth does not show that combining UPnP

with 802.11 would not be considered an improvement as alleged by Patent Owner.

Thus, Patent Owner's arguments that Yamaguchi's Bluetooth implementation provides similar benefits to the combination proposed by Petitioner that relies Yamaguchi's 802.11 implementation (PO Resp. 34–38, 44–45)<sup>11</sup> does not take away from Petitioner's combination or reasons to combine.

While discussing Yamaguchi's Bluetooth implementation, Patent Owner also makes a brief general allegation that 802.11 also offers “a standardized connection functionality with widespread support.” *Id.* at 43. While making this general allegation, Patent Owner does not actually address the full reasons to combine 802.11 and UPnP or contest Petitioner's evidence the UPnP is compatible with 802.11. *See* Pet. 45–47; Ex. 1002 ¶¶ 191–97.

For the reasons identified above, Patent Owner does not persuasively identify any deficiencies in Petitioner's reasons to combine.

*b) Providing a Device Profile*

Claim 1 requires, *inter alia*:

providing, by the wireless controller and over the short range wireless communication to the one or more wireless information apparatus, at least a device profile that includes at least an identity of the output device or the wireless controller for

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<sup>11</sup> It is unnecessary for us to address Patent Owner's arguments that a reasonable expectation of success and basic compatibility of the technologies, without more, are insufficient reasons to combine (PO Resp. 44–45), as the Petition does not rely on these concepts alone for their reasons to combine Yamaguchi and Gu (*see supra* Section II.G.3.a) discussing the reasons to combine).

identification or selection by the one or more wireless information apparatus.

Ex. 1001, 42:29–34.

As discussed above with respect to “broadcasting availability,” the Petition identifies that “the ’064 patent states that UPnP can be used for discovery” (Pet. 51 (citing Ex. 1001, 30:28–38)) and that “Gu explains that discovery in UPnP uses Simple Service Discovery Protocol (SSDP)” (*id.* (citing Ex. 1009, 3:35–47; 19:64–21:15; 10:45–67)). Petitioner argues that the teachings of Gu combined with Yamaguchi provides for “Yamaguchi’s interface box to announce its devices and services,” which would then “wait[] to be identified by a wireless device.” *Id.*

Concerning providing a device profile, Petitioner argues that Gu teaches providing “description documents” including the device name, which would be provided after discovery. *Id.* at 52. Petitioner further argues that “[i]n combining Yamaguchi and Gu . . . , it would have been obvious for Yamaguchi’s interface box to provide description documents to user devices that request them after discovering the interface box as described by Gu.” *Id.* Petitioner continues, “As a combination-controlled device and bridge, the interface box would provide a description document for itself and also for its bridged printer.” *Id.* (citing Ex. 1009, 21:16–25).

Patent Owner argues that Petitioner fails to establish how Gu meets the providing a device profile claim element. PO Resp. 46–49. In particular, Patent Owner argues that Petitioner fails to “explain[] how providing the description documents is ‘for identification or selection by the one or more wireless information apparatus’ as required by [claim 1].” *Id.* at 48–49. Patent Owner argues that “Petitioner admits that the providing of description documents [in Gu] occurs after discovery” (*id.* at 47–48 (citing Pet. 52)) and

thus, Petitioner cannot rely on “the discovery discussion in the Petition” related to “broadcasting availability” for the claim requirements of “providing a device profile” “because the providing of description documents does not occur during that discovery step in Gu” (*id.* at 48).

Petitioner argues that the “discovery” and “description” steps are closely related in Gu and “that the purpose of the discovery process is to obtain the description URL that enables retrieval of the description document for the discovered device.” Reply 15 (citing, *e.g.*, Ex. 1028 ¶ 45; Ex. 1009, 11:30–35; 13:34–43; 16:63–65). Petitioner further argues that “[i]t would have been obvious to a [POSA] . . . that a user could select Yamaguchi’s interface box after obtaining its description document which would include information that would be meaningful to a user (*e.g.*, manufacturer, model information, friendlyName) in deciding whether to select the device.” *Id.* at 15–16 (citing, *e.g.*, Ex. 1028 ¶ 47).

Petitioner also argues that

Gu’s description documents include a variety of identification information for a discovered device and thus provide information “for identification” as claimed, regardless of whether or not that information is also used “for . . . selection.” Pet. at 52; *see also* Gu at 21:28-31 (“The **UPnP Description Document 226 (FIG. 3) provides the information necessary to identify**, describe, connect and control a UPnP Controlled Device 106-107 or Bridge 120 from a User Control Point 104-105.”) (emphasis added). Ex. 1028 (Bhattacharjee) ¶ 48.

Reply 16.

Patent Owner does not respond to Petitioner’s arguments other than to say that the Petition doesn’t fully explain Petitioner’s position. Sur-reply 18–19.

As noted above, Gu expressly teaches that the “UPnP Description Document 226 (FIG. 3) provides the information necessary to identify . . . a UPnP Controlled Device.” Thus, in view of this teaching and the other teachings and evidence relied on by Petitioner, we determine that Gu teaches providing a device profile that includes an identity of the output device or the wireless controller for identification by the wireless information apparatus.

*c) Receiving an Output Data Stream*

Claim 1 requires, *inter alia*:

receiving, at the wireless controller and over the short range wireless communication from the one or more wireless information apparatus, an output data stream corresponding to at least part of digital content that includes video content, audio content, or document content, individually or in any combination, for rendering at the output device.

Ex. 1001, 42:35–41.

The Petition argues that “Yamaguchi discloses that the interface box wirelessly receives electronic document data from the wireless device” and that “[i]t would have been obvious to a POSA that the interface box would receive an output data stream corresponding to document content for rendering at the printer.” Pet. 53 (citing Ex. 1008, 1:63–67, 2:60–63, 5:47–6:30; Fig. 3B; Ex. 1002 ¶¶ 216–17).

Patent Owner argues that Petitioner’s argument is conclusory. PO Resp. 49. Patent Owner’s declarant admits that Yamaguchi teaches that “the user uploads (*e.g.*, via FTP) a document to the interface box through a web browser interface,” but argues that “Petitioner has not shown how uploading of such a document constitutes an ‘output data stream.’” Ex. 2034 ¶ 118.

Notably, neither Patent Owner nor Patent Owner’s declarant contest Petitioner’s declarant testimony that one of ordinary skill in the art “would consider the document data received by the interface box [in Yamaguchi] to be an ‘output data stream’ as claimed.” Ex. 1002 ¶ 216; *see also* Pet. 53. Petitioner’s declarant explains that this is based on the ’064 patent’s teaching of “using conventional wireless technologies such as Bluetooth and 802.11” for uploading the output data stream. *Id.*

Further, the claim requires that the “output data stream correspond[] to at least part of digital content that includes . . . document content” and Patent Owner’s declarant admits that Yamaguchi teaches uploading a document. Thus, it is not clear that anything further is required by the claim.

After our review of Petitioner’s assertions with respect to this claim limitation, we determine that Petitioner’s position is supported by a preponderance of the evidence.

*d) Conclusion as to Claim 1*

After our review of Petitioner’s assertions with respect to claim 1, and the supporting evidence, including as summarized and discussed above, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable. Pet. 42–54; Ex. 1002 ¶¶ 191–219.

*4. Claims 2–4*

Petitioner argues that the combination of Yamaguchi, Gu renders obvious claims 2–4, which depend from claim 1. Pet. 54–56. Patent Owner relies on its arguments over claim 1 for the patentability of these claims. PO Resp. 51.

We have reviewed Petitioner’s assertions with respect to claims 2–4, and the supporting evidence, and determine that Petitioner has proven, by a

preponderance of the evidence that claims 2–4 are unpatentable. Pet. 54–56; Ex. 1002 ¶¶ 221–225.

5. *Claim 15*

Independent claim 15 is very similar to claim 1 and the Petition primarily relies on similar teachings of Yamaguchi and Gu discussed above. *See* Pet. 56–59.

However, claim 15 also requires, *inter alia*:

implementing a security procedure by the wireless controller for enabling a restricted short range wireless communication channel between the wireless controller and the one or more wireless information apparatus.

Ex. 1001, 45:32–35.

In discussing this limitation, the extent of the Petition’s discussion is as follows:

Yamaguchi discloses that the interface box can implement a security procedure whereby a user has to enter a “valid ID number” that matches a random number generated and displayed by the interface box. Yamaguchi at 7:7-49; Fig. 5; *see also id.* at 4:10-29 (discussing other payment options). If the number matches “the user is *authorized and thus allowed to proceed*” to print a document. *Id.* at 7:45-49. Bhattacharjee ¶ 237-238.

Pet. 58.

Patent Owner argues that the Petition fails to show how Yamaguchi teaches the noted limitation. PO Resp. 49–51. Patent Owner argues that Yamaguchi teaches a “payment process” for authorizing a user to print a document, “but not a security procedure for enabling a restricted short range wireless communication channel [between the wireless controller and the one or more wireless information apparatus].” *Id.* at 50 (citing Ex. 1008, 7:13–20, 40–49; Ex. 2034 ¶ 119).

Petitioner in reply asserts that the claim does not “require an ‘encrypted’ communication channel” and that “Yamaguchi’s communication channel is ‘restricted’ because only ‘authorized’ users are able to establish the communication channel.” Reply 17.

However, Yamaguchi does not teach that “only ‘authorized’ users are able to establish the communication channel” as asserted by Petitioner. Patent Owner correctly notes that anyone can establish a connection to the interface box over the RF signal when the signal is being transmitted. Sur-reply 20 (citing Ex. 1008, 7:21–24).

It is only after a communication channel is established that Yamaguchi teaches that the system checks to see if the user can print a document. *Id.* at 20–21 (citing Ex. 1008, 7:35–39). In order to verify that the user can print a document, Yamaguchi teaches that the “interface box 102 causes an interface window to be displayed on wireless device 112 that includes a request for the user to enter a valid ID number.” Ex. 1008, 7:36–39. This is done over the established and unrestricted communication channel. Once the user enters a valid ID number “the user is authorized and thus allowed to proceed to generate a printed copy [of] an electronic document that is of interest to them.” *Id.* at 7:47–49. Thus, Yamaguchi restricts the ability to print documents, but also requires an unrestricted communication channel in order to communicate with user devices to determine whether those devices are able to print a document. *See* Sur-reply 21.

For these reasons, Petitioner has not shown how Yamaguchi teaches “implementing a security procedure by the wireless controller for enabling a restricted short range wireless communication channel between the wireless

controller and the one or more wireless information apparatus” as required by claim 15.

6. *Claims 16–18, 20*

Petitioner argues that the combination of Yamaguchi and Gu renders obvious claims 16–18 and 20, which depend from claim 15. Pet. 59–60. Petitioner has not shown how the combination of Yamaguchi and Gu teaches all of the limitations of these claims for at least the same reasons as independent claim 15.

H. *35 U.S.C. § 103(a) – Yamaguchi, Gu, Garfunkel*

Petitioner argues that the combination of Yamaguchi, Gu, and Garfunkel renders obvious claim 19, which depends from claim 15. Pet. 60–62. Petitioner does not rely on Garfunkel in a manner that would overcome the deficiencies identified above with respect to independent claim 15. Thus, Petitioner has not shown how the combination of Yamaguchi, Gu, and Garfunkel teaches all of the limitations of claim 19 for at least the same reasons as independent claim 15.

I. *35 U.S.C. § 103(a) – Gu, Yamaguchi*

Petitioner argues that the combination of Gu and Yamaguchi renders obvious claims 5–10 and 14. Pet. 62–75. Patent Owner argues that the Petition fails to provide a reason to combine Yamaguchi and Gu and that the Petition fails to show that the prior art teaches all of the limitations of the claims. PO Resp. 51–56.

1. *Claim 5*

Petitioner relies on Gu’s teaching of a set-top box and UPnP, and Yamaguchi’s teaching of “an interface box that wirelessly communicates with user devices, wirelessly receives data for output, processes that data, and passes the data to a conventional output device” to teach the limitations

of claim 5. Pet. 66–72. For example, the Petition relies on Gu’s set-top box for the claimed wireless controller that can receive streams from user devices and outputs content on an output device, such as a TV. *Id.* at 66. The Petition further argues that Gu teaches that the set-top box can include a wireless network adapter and that it would have been obvious to include 802.11 or Bluetooth in view of the teachings of Yamaguchi and to establish wireless connections to receive or output digital content. *Id.* at 67–70. Further, like claim 1, claim 5 includes a similar “broadcasting availability” limitation. *Compare* Ex. 1001, 42:19–28, *with id.* at 53:37–42. Petitioner relies on the same teachings of Gu and Yamaguchi discussed above with respect to claim 1 under the Yamaguchi and Gu ground. *Id.* at 70.

*a) Receiving and Decoding*

Claim 5 also includes, *inter alia*:

receiving, over the short range wireless communication channel and from the one or more wireless information apparatus, intermediate output data, the intermediate output data corresponding to at least part of the digital content that includes video content, audio content, individually or a combination thereof, and the intermediate output data further including a format or language encoding related to audio or video digital content; and

decoding at least part of the intermediate output data that includes audio or video content received from the one or more wireless information apparatus.

Ex. 1001, 43:43–53.

Petitioner argues, among other things, that

Gu discloses that UPnP devices can receive A/V data from other devices. *See, e.g.,* Gu at 5:66-6:2; 15:15–18. It would have been obvious to a POSA . . . for Gu’s set-top box to receive [and decompress/decode] A/V data and for such data to be in “a format or language encoding related to audio or video digital

content” as claimed. For example, it would have been obvious to receive A/V data in standard compressed formats such as MPEG standard formats (intermediate output data) as use of standard compression was commonplace in digital A/V systems.

Pet. 70–71; *see also* Ex. 1002 ¶¶ 290–297. Petitioner also argues that “Yamaguchi’s . . . interface box performs analogous decoding of document data when it converts the data into print ready files that are suitable for output by the attached printer.” *Id.* at 72 (citing Ex. 1008, 5:9–6:29, Fig. 3B; Ex. 1002 ¶ 295). The Petition and Petitioner’s declarant also point to Hoffman (Roy Hoffman, *Data Compression in Digital Systems* (1997) (Ex. 1016)) for evidence of what a POSA would have known concerning compression/decompression of A/V content at the time of the invention. Pet. 71; *see also* Ex. 1002 ¶¶ 290–291, 294, 296.

Patent Owner argues that the Petition relies on conclusory statements rather than support for the positions that A/V data would have been in standard compressed formats, and that a set-top box would decompress or decode compressed A/V data. PO Resp. 54–55. At the same time, Patent Owner acknowledges that the Petition relies on declarant testimony and the Hoffman reference for evidence of what one of ordinary skill in the art would have understood. *Id.* at 55. Thus, Patent Owner’s position that the Petition is conclusory appears to only be based on their argument that Gu and Yamaguchi don’t provide the express teachings relied on in the Petition and that therefore all other evidence should be rejected. *See* PO Resp. 55 (Arguing that nothing in Gu or Yamaguchi teaches the full limitations and stating all other evidence is hindsight). Patent Owner’s declarant also states that the Petition’s statements are conclusory, but then only asserts that Gu and Yamaguchi don’t teach all the features of the claims. Ex. 2034 ¶¶ 125–126.

Though the Petition does rely on the knowledge of one of skill in the art for parts of these claim limitations, the Petition shows that Gu teaches that UPnP devices receive A/V data. Pet. 70 (citing Ex. 1009, 5:66–6:2; 15:15–18). The Petition also shows that Yamaguchi discloses an analogous process of decoding of document data for a printer. *Id.* at 72 (citing Ex. 1008, 5:9–6:29, Fig. 3B; Ex. 1002 ¶ 295). As relied on by Petitioner, Yamaguchi expressly teaches decoding a file, such as a WORD document into a print ready file. Ex. 1008, 5:9–6:29, Fig. 3B; Pet. 72; Ex. 1002 ¶ 295.

Though Patent Owner argues that “[n]othing in Gu or Yamaguchi teaches a set-top box decompressing or decoding compressed A/V data,” Patent Owner’s argument fails to address the actual teachings of Gu or Yamaguchi, or what one of skill in the art would have understood based on those teachings. Even Patent Owner’s basic assertion (“[n]othing in Gu or Yamaguchi) only addresses Gu and Yamaguchi individually, without addressing the combination. Thus, Patent Owner’s argument does not address the actual ground set forth in the Petition.

While at the same time, the Petition does set forth argument and evidence of what one of skill in the art would have understood based on the teachings of both Gu and Yamaguchi. *See e.g.*, Pet. 64–66, 70–72; Ex. 1002 ¶¶ 290–296.<sup>12</sup>

Patent Owner also argues that “[a]ny reference to Hoffman should be rejected since it goes beyond the scope of the grounds articulated in the

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<sup>12</sup> Notably, Patent Owner’s declarant does not address or contest any of the statements of Petitioner’s declarant relied upon in the Petition in support of these limitations and only asserts that the references individually do not teach the limitations. *See* Ex. 2034 ¶¶ 1125–126.

Petition.” Sur-reply 23. This is an improper new argument first raised in the Sur-reply.

Further, we decline to reject Hoffman as Petitioner is relying on Hoffman as evidence of the background knowledge of what one of skill in the art would have known when considering the teachings of Gu and in particular what they would have understood about A/V data in the context of set-top boxes.<sup>13</sup> See Pet 65–66, 70–72; Ex. 1002 ¶¶ 290–297. The Supreme Court has indicated that considering the “background knowledge possessed by a person having ordinary skill in the art” is part of the obviousness analysis. *KSR*, 550 U.S. at 418; see also *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020) (“Regardless of the tribunal, the inquiry into whether any ‘differences’ between the invention and the prior art would have rendered the invention obvious to a skilled artisan necessarily depends on such artisan’s knowledge”).

After review of the arguments and evidence and further in view of the above reasons, we determine that the Petition has shown that the “receiving and decoding” limitations would have been obvious to one of ordinary skill in the art by a preponderance of the evidence.

*b) Reason to Combine*

Patent Owner also argues that the provided reason to combine Gu and Yamaguchi is insufficient. PO Resp. 52–54. In particular, Patent Owner

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<sup>13</sup> Patent Owner makes the incorrect assertion that “[t]he portions of Hoffman that Petitioner’s declarant cites say nothing about set-top boxes.” Sur-reply 24. While Patent Owner identifies certain general portions of Hoffman (*id.*), the Petition and Petitioner’s declarant include and discuss Figure 9.4 of Hoffman that shows a Digital Set-Top (Pet. 65, 71; Ex. 1002 ¶¶ 267, 294) which is from a section of Hoffman titled “9.4 Digital Set-Top Boxes” (Ex. 1016, 250).

argues that the reason to combine amounts to an argument that Yamaguchi and GU are analogous and that there would be a reasonable expectation of success, but that the Petition does not put forth an actual reason why one of ordinary skill in the art would have made the combination. *Id.*

Concerning the reason to combine, Petitioner argues that

Yamaguchi discloses an interface box that wirelessly communicates with user devices, wirelessly receives data for output, processes that data, and passes the data to a conventional output device which happens to be a printer. A POSA would have been motivated to combine these teachings with the A/V teachings of Gu. A POSA would have recognized that the A/V data transmitted to a set-top box could come from user wireless devices.

Pet. 64. Petitioner also argues that Yamaguchi's interface box and Gu's set-top box are analogous devices, and so one of skill in the art would be motivated to look to Yamaguchi because of the similarity to combine aspects of the two teachings. *Id.* at 64–65.

In the Reply, Petitioner expands upon the argument of the set-top boxes being analogous devices, arguing that

while Gu discloses a set-top box, it does not explicitly describe how a set-top box processes the A/V data it receives. Yamaguchi's interface box is analogous to a set-top box, however, and Yamaguchi describes decoding content and outputting corresponding data over a wired connection to an associated output device. 1002 (Bhattacharjee) ¶¶ 295. Accordingly, a [POSA] would recognize that Yamaguchi's teachings as to how the interface box decodes content for output via an associated output device would be instructive as to how Gu's set-top box could accomplish the same objective.

Reply 18–19.

Patent Owner acknowledges this further explanation, but only responds that “nothing in Yamaguchi discusses decoding content.” Sur-reply

22–23 (Citing PO Resp. 54–56). However, as discussed in the preceding section above, Yamaguchi does expressly teach decoding of document data into print ready data. *See* Ex. 1008, 5:9–6:29, Fig. 3B; Pet. 27; Ex. 1002 ¶ 295.

In view of the context of the combination as a whole, we determine that Petitioner has set forth sufficient reasoning to combine. We agree that one of ordinary skill in the art would have been motivated to look to Yamaguchi to fill in the missing details in Gu concerning decoding content and outputting that content to an output device as taught by Yamaguchi.

*c) Conclusion*

After review of the arguments and evidence, and further in view of the above discussion, we determine that the Petition has shown that claim 5 is unpatentable by a preponderance of the evidence. Pet. 62–72; Ex. 1002 ¶¶ 261–299.

*2. Claims 6–10, 14*

Petitioner argues that the combination of Gu and Yamaguchi renders obvious claims 6–10 and 14, which depend from claim 5. Pet. 73–75. Patent Owner does not separately address these claims. *See generally* PO Resp. We have reviewed Petitioner’s assertions with respect to claims 6–10 and 14, and the supporting evidence, and determine that Petitioner has proven, by a preponderance of the evidence that claims 6–10 and 14 are unpatentable. Pet. 73–75; Ex. 1002 ¶¶ 300–311.

*J. 35 U.S.C. § 103(a) – Gu, Yamaguchi, Garfunkel*

Petitioner argues that the combination of Yamaguchi, Gu, and Garfunkel renders obvious claim 12, which depends from claim 5. Pet. 76–78. Patent Owner relies on its arguments over claim 5 for the patentability of this claim. PO Resp. 54. We have reviewed Petitioner’s assertions with

respect to claim 12, and the supporting evidence, and determine that Petitioner has proven, by a preponderance of the evidence that claim 12 is unpatentable. Pet. 76–78; Ex. 1002 ¶¶ 312–320.

### III. CONCLUSION

For the reasons discussed above, we determine Petitioner has proven, by a preponderance of the evidence, that some challenged claims are unpatentable, as summarized in the following table:

| <b>Claims</b>                 | <b>35<br/>U.S.C. §</b> | <b>Reference(s)<br/>/Basis</b>    | <b>Claims<br/>Shown<br/>Unpatentable</b> | <b>Claims Not<br/>Shown<br/>Unpatentable</b> |
|-------------------------------|------------------------|-----------------------------------|------------------------------------------|----------------------------------------------|
| 1–3, 5, 6, 8,<br>9, 15–18, 20 | 103(a)                 | Ikonen, Beck                      |                                          | 1–3, 5, 6, 8, 9,<br>15–18, 20                |
| 4, 7, 10, 14                  | 103(a)                 | Ikonen, Beck,<br>Ortiz            |                                          | 4, 7, 10, 14                                 |
| 12, 19                        | 103(a)                 | Ikonen, Beck,<br>Ortiz, Garfunkel |                                          | 12, 19                                       |
| 1–4, 15–18,<br>20             | 103(a)                 | Yamaguchi, Gu                     | 1–4                                      | 15–18, 20                                    |
| 19                            | 103(a)                 | Yamaguchi, Gu,<br>Garfunkel       |                                          | 19                                           |
| 5–10, 14                      | 103(a)                 | Gu, Yamaguchi                     | 5–10, 14                                 |                                              |
| 12                            | 103(a)                 | Gu, Yamaguchi,<br>Garfunkel       | 12                                       |                                              |
| <b>Overall<br/>Outcome</b>    |                        |                                   | 1–10, 12, 14                             | 15–20                                        |

#### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–10, 12, and 14 of US Patent 8,989,064 B2 have been shown to be unpatentable;

FURTHERED ORDERED that claims 15–20 of US Patent 8,989,064 B2 have not been shown to be unpatentable; and

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

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