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Paper 45
Date: October 11, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROKU, INC.,
Petitioner,

v.

FLEXIWORLD TECHNOLOGIES, INC.,
Patent Owner.

IPR2021-00713
Patent 10,740,066 B2

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

DOUGAL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All 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 7, 8, 10, 11, 14, 15, 17, and 19 ("the challenged claims") of patent US 10,740,066 B2 (Ex. 1001, "the '066 patent"). Paper 21 ("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 16, 19).[1]

After institution, Patent Owner filed a Response (Paper 24, "PO Resp."), Petitioner filed a Reply (Paper 32, "Reply"), and Patent Owner filed a Sur-reply (Paper 34, "Sur-reply"). Petitioner also filed a Motion to Strike (Paper 39) and a Motion to Exclude (Paper 42). Patent Owner also filed a Response to the Motion to Strike. Paper 40. An oral hearing was held on July 19, 2022, and a copy of the transcript was entered into the record. Paper 44 ("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 7, 8, 10, 11, 14, 15, 17, and 19 are unpatentable.

B. Related Matters

The parties identify the following related district court litigation: *Flexiworld Technologies, Inc. v. Roku, Inc.*, No. 6:20-cv-00819-ADA (W.D.

[1] Petitioner also filed a Preliminary Reply. Paper 17.

Tex.). Pet. 2; Paper 3, 2. We also note the following related *inter partes* reviews: IPR2021-00714, IPR2021-00715.

C. The '066 Patent

The '066 patent is entitled "Output Devices that Establish Wireless Connection with an Information Apparatus Subsequent to Having Been Wirelessly Discovered by the Information Apparatus." Ex. 1001, code (54). The inventors sought to develop a method of outputting digital information from one device to another without requiring users to install and use device-specific drivers. *Id.* at 4:53–56. The '066 patent discusses wireless printing in detail, but also states that the invention is not limited to printing. *Id.* at 1:56–64. "An output device 140 may include a fax machine, printer, copier, image or video display device, projector, and an audio output device." *Id.* at 1:53–55.

The '066 Patent describes steps of an output process using a wireless output controller. *Id.* at 5:40–6:60. 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 10:31–38, 15:47–67. The user's device can transmit output data to the output controller, which processes the data for output to the output device. *Id.* at 24:3–40. The output controller then sends the processed data to the output device, which outputs it to the user. *Id.* at 24:41–50.

As illustrated below, in Figure 4A the output controller (120A) can be a separate "box" connected by wire to the printer (140A). *Id.* at 15:63–67.

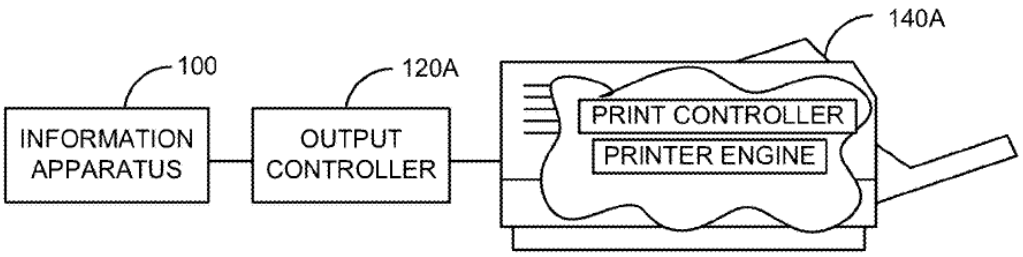


Fig. 4A

Figure 4A shows an information apparatus (100), an output controller (120A), and a printer (140A), all drawn schematically. Figure 4B, below, shows another embodiment.

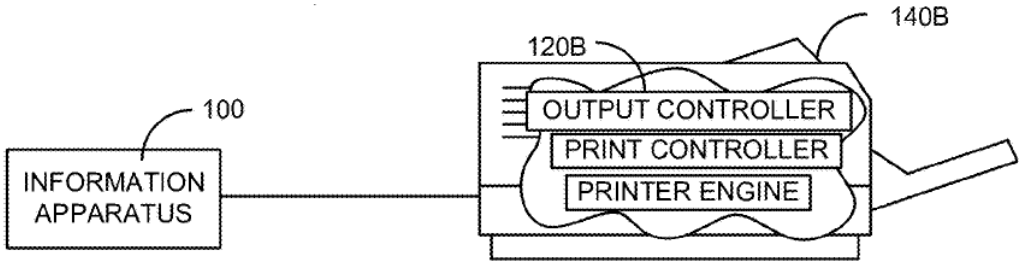


Fig. 4B

Figure 4B is similar to Figure 4A, but the output controller is shown integrated into the printer. *Id.* at 19:3–10. The '066 Patent discloses that the various embodiments of the output controller can be implemented with hardware and/or software. *Id.* at 11:27–29.

D. Illustrative Claim

Petitioner challenges claims 7, 8, 10, 11, 14, 15, 17, and 19 of the '066 patent. Claims 7 and 14 are independent. Claim 7 is illustrative:

> 7. A wireless output device to wirelessly receive output data from an information apparatus that is a separate device from the wireless output device, the wireless output device includes:
>
> one or more embedded processors;
>
> memory or storage for storing one or more device attributes related to the wireless output device;
>
> software or firmware stored at the memory or the storage;

one or more wireless communication units that include hardware circuitry to enable the wireless output device to wirelessly communicate with the information apparatus; and

an output controller for processing data,

wherein, upon execution of at least part of the software or the firmware, at the wireless output device, by the one or more embedded processors, the wireless output device:

(1) wirelessly announces or advertises, via the one or more wireless communication units, availability of the wireless output device for service, the wireless announcing or advertising is for enabling the information apparatus to wirelessly discover the wireless output device, the wireless discovery is based, at least in part, on the wireless output device being within a limited physical distance to the information apparatus for short range wireless communication between the wireless output device and the information apparatus;

(2) wirelessly transmits, via the one or more wireless communication units of the wireless output device and over a radio frequency wireless communication channel between the wireless output device and the information apparatus, the one or more device attributes that are stored in the memory or the storage of the wireless output device, to the information apparatus that has wirelessly discovered the wireless output device in (1), the one or more device attributes are related to the wireless output device;

(3) wirelessly receives, via the one or more wireless communication units and over the radio frequency wireless communication channel from the information apparatus, output data, the output data includes digital content for outputting or rendering at the wireless output device, and the wireless receiving of the output data is subsequent to the wireless output device having wirelessly transmitted the one or more device attributes from the wireless output device to the information apparatus in (2); and

(4) processes, by the output controller included in the wireless output device, at least part of the output data, which is wirelessly received in (3), into a form, a format, an instruction,

> or a language, individually or in any combination, that is acceptable for outputting or rendering by an output device associated with the wireless output device, the processing of the output data includes at least one of a decoding operation, a conversion operation, a scaling operation, or an interpreting operation, individually or in any combination; and
>
> wherein the wireless output device provides an output service to the information apparatus after being wirelessly discovered by the information apparatus in (1) and after having wirelessly transmitted the one or more device attributes from the wireless output device to the information apparatus in (2); and wherein the radio frequency wireless communication channel between the information apparatus and the wireless output device is (a) a direct short range wireless communication, or (b) a wireless local area network communication.

Ex. 1001, 32:51–33:53.

II. ANALYSIS

A. Summary of Issues

In the below analysis, we first address the grounds of unpatentability. We then address the Motions to Strike and Exclude.

B. Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 3), supported by the declaration of Samrat Bhattacharjee, Ph.D. (Ex. 1002):

Claim(s) Challenged	35 U.S.C. §[2]	Reference(s)/Basis
7, 8, 10	103(a)	Ikonen,[3] Gu[4]

[2] 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.

[3] U.S. Patent Pub. 2006/0112414 A1, pub. May 25, 2006. ("Ikonen") (Ex. 1006).

[4] U.S. Patent 6,892,230 B1, issued May 10, 2005. ("Gu") (Ex. 1004).

Claim(s) Challenged	35 U.S.C. §[2]	Reference(s)/Basis
11	103(a)	Ikonen, Gu, Garfunkel[5]
14, 15, 17	103(a)	Ikonen, Kammer[6]
19	103(a)	Ikonen, Kammer, Peng[7]
7, 8, 10	103(a)	Yamaguchi,[8] Gu
11	103(a)	Yamaguchi, Gu, Garfunkel

C. 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).

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) ("*KSR*") (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.

[5] U.S. Patent 6,615,404 B1, issued Sept. 2, 2003. ("Garfunkel") (Ex. 1005).
[6] U.S. Patent 7,356,347 B1, issued Apr. 8, 2008. ("Kammer") (Ex. 1007).
[7] U.S. Patent 6,205,429 B1, issued Mar. 20, 2001. ("Peng") (Ex. 1008).
[8] U.S. Patent 7,355,732 B2, issued Apr. 8, 2008. ("Yamaguchi") (Ex. 1003).

D. 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. 13 (citing Ex. 1002 ¶ 10).

Patent Owner does not address the level of skill. *See generally* PO Resp. We are persuaded that Petitioner's proposal is consistent with the problems and solutions in the '066 patent and prior art of record. We adopt Petitioner's definition of the level of skill for the purposes of this Decision.

E. 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 at this stage. Pet. 10. Patent Owner argues that some of Petitioner's positions are based on improper claim constructions. PO Resp. 13. To the extent any term needs construction, we address the term in the arguments below. *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).

F. 35 U.S.C. 103(a) – Ikonen, Gu

Petitioner argues that the combination of Ikonen and Gu renders obvious claims 7, 8, and 10. Pet. 38–55. Patent Owner argues against combining Ikonen and Gu. PO Resp. 33–47. For the reasons expressed below, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 7, 8, and 10 are unpatentable.

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. 1006, Abstract, ¶ 4. Ikonen's system can be seen in Figure 1, reproduced below.

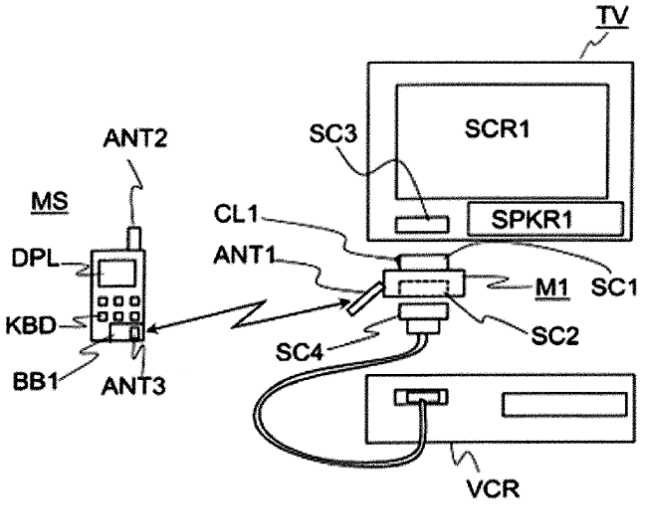


Fig. 1

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. Gu

Gu is related to a device control process called Universal Plug and Play (UPnP). Ex. 1004, 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 7

Independent claim 7 starts with a list of components included in a wireless output device: one or more embedded processors, memory or

storage, software or firmware, one or more wireless communication units, and an output controller. Ex. 1001, 32:51–63. Each component includes various features and requirements not listed here. The Petition largely relies on Ikonen's link module to teach these various components of the wireless output device of claim 7. Pet. 42–48. For example, Petitioner points to Ikonen Figure 3, reproduced below, as showing components included in the link module.

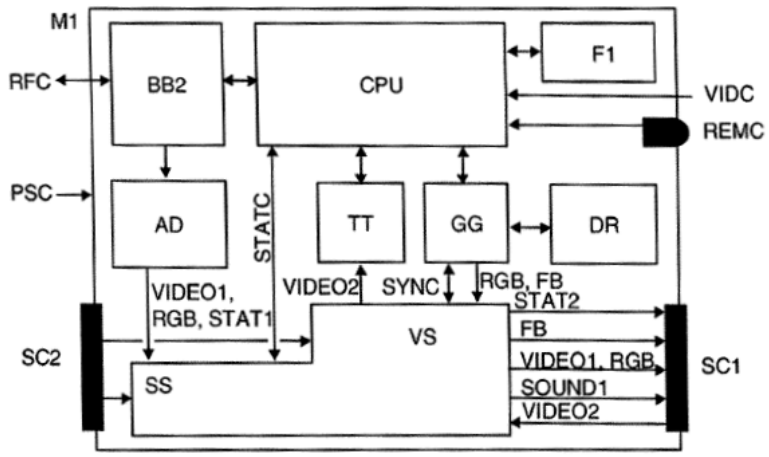


Fig. 3

Ikonen Figure 3 "is a block diagram of the structure of an LPRF-link module." Ex. 1006 ¶ 29. The Petition relies on at least the following aspects of Ikonen shown in Figure 3: Ikonen's CPU for claim 7's embedded processor; the flash memory (F1) for the memory or storage and for storing software; and the LPRF radio block (BB2) with Ikonen's WLAN connection (instead of Bluetooth) for the wireless communication unit. Pet. 43–47.

For claim 7's output controller, Petitioner states that the '066 patent teaches that this can be implemented with either hardware or software. *Id.* at 47 (citing Ex. 1001, 9:52–54). The Petition identifies the audio decoder (AD) and the graphics generator (GG), both shown in Ikonen Figure 3, as "part of an output controller that processes data." *Id.* at 48. Further,

Petitioner argues that Ikonen teaches the output controller based on the teaching "that the link module 'contains the necessary electronics to receive the signal sent from the mobile station as an LPRF radio signal and convert it to a format suitable for television.'" *Id.* at 47 (emphasis omitted) (quoting Ex. 1006, Abstract) (citing Ex. 1006 ¶¶ 19, 24 (as "disclosing signal conversion means")).

Patent Owner does not contest the Petition's showings with respect to Ikonen for the components, or any other aspect of the claims. *See generally* PO Resp.

Following the listing of components in the wireless output device, claim 7 states: "wherein, upon execution of at least part of the software or the firmware, at the wireless output device, by the one or more embedded processors, the wireless output device . . . ," which is followed by four numbered steps and then a final wherein clause. Ex. 1001, 32:64–33:51. The Petition largely relies on the combination of the teachings of Ikonen and Gu as disclosing or suggesting these various claim elements. Pet. 48–52.

Concerning the combination, the Petition argues that a POSA would have found it obvious to utilize Universal Plug and Play (UPnP) as taught by Gu in Ikonen's system linking a mobile station (i.e. mobile phone) to a TV for displaying information from the phone on the TV. *See generally* Pet. 40–42. Petitioner argues that UPnP would be integrated into the link module because it provides a number of known benefits. *Id.* Petitioner argues that "UPnP was known for supporting service discovery" and that it provides "an entire framework for interoperability." *Id.* at 40. Further, Petitioner argues that UPnP "was standardized" and that a "POSA would expect that many user devices would be UPnP-compliant." *Id.* at 41. Thus, UPnP would facilitate mobile stations discovering and connecting with the link module.

Petitioner also argues that "UPnP relies on IP networking . . . which a POSA would have known to be compatible with Ikonen's wireless LAN option." *Id.* at 42 (citing Ex. 1004, 6:13–17; 50:13–25; Fig. 27; Ex. 1006 ¶ 38); *see also* Ex. 1002 ¶ 140 (Petitioner's declarant explaining that UPnP could be implemented over a wireless LAN).

As noted previously, it is largely on the basis of this combination that the Petitioner argues the prior art teaches the four numbered steps and the final wherein clause of claim 7. Pet. 48–52. For example, the Petition states that under steps (1) and (2) of claim 7, it would have been obvious "for Ikonen's link module to [wirelessly] announce its devices and services as described by Gu," and that the "link module would transmit description documents in response to . . . requests" from mobile stations in the discovery process. *Id.* at 48–49.

Concerning steps (3) and (4), it has already been noted that Ikonen teaches "that the link module 'contains the necessary electronics to receive the signal sent from the mobile station as an LPRF radio signal [of WLAN equivalent] and convert it to a format suitable for television." *Id.* at 47 (emphasis omitted) (quoting Ex. 1006, Abstract); *see also id.* at 51 (same quote discussing step (4)). Petitioner relies on this and other related teachings for the wirelessly receiving output data and processing at least part of the output data for outputting or rendering by the output device aspects of the claim. Pet. 49–51. Petitioner further argues that the combination of Ikonen and Gu would facilitate "control interactions between the devices" and ensure that the "link module would receive output data from a user device after transmitting its description document" as required by claim 7. *Id.* at 50 (emphasis omitted).

The last wherein clause of claim 7 requires, *inter alia*, that "the wireless output device is (a) a direct short range wireless communication, or (b) a wireless local area network communication." Ex. 1001, 33:50–53. The Petition states that this is taught by Ikonen which "discloses that the communication channel between the mobile station (information apparatus) and link module (wireless output device) can be either a direct short range wireless communication (*e.g.*, Bluetooth) or a wireless LAN communication." Pet. 52 (citing Ex. 1006 ¶¶ 34, 39; Ex. 1002 ¶ 167).

a) Analysis

Patent Owner does not contest what Ikonen or Gu teach, or what is taught by their combination. *See generally* PO Resp. After a review of the evidence and arguments, as summarized above, we determine that the Petition has demonstrated, by a preponderance of the evidence, that the combination of Ikonen and Gu teaches all of the limitations of claim 7.

Though Patent Owner does not contest the teachings of Ikonen or Gu, Patent Owner does contest that one of skill in the art would combine Ikonen and Gu. Patent Owner argues 1) that "Petitioner has not offered sufficient evidence to show that a POSA would have made the combination of Ikonen and Gu" because it ignores Ikonen's teachings of Bluetooth; 2) that "[t]he Petition ignores the significant drawbacks of implementing Gu's UPnP into Ikonen;" and 3) also makes a number of general allegations related to Petitioner's reasons to combine. PO Resp. 34, 39, 44, 45–47. We address each argument in turn.

(1) Ikonen's Bluetooth Solution

Patent Owner argues that "the Petition ignores that Ikonen already taught a Bluetooth solution with all of the purported benefits that Petitioner identified for its reasons to combine" and thus, "Petitioner has not offered

sufficient evidence to show that a POSA would have made the combination of Ikonen and Gu" *Id.* at 44, 34. For the reasons discussed below, Patent Owner's argument does not identify any issues with Petitioner's reasons to combine.

In our Institution Decision, we determined that Patent Owner's arguments about Ikonen's teachings related to Bluetooth did not address the combination as set forth in the Petition. Dec. 14. This was because the Petition seeks "to combine Gu's UPnP with Ikonen's wireless LAN" rather than with Ikonen's Bluetooth. *Id.*; *see also* Pet. 42 ("UPnP relies on IP networking . . . which a POSA would have known to be compatible with Ikonen's wireless LAN option").[9] Patent Owner now argues that "Petitioner ignored that Bluetooth solution and by doing so failed to consider the reference as a whole when making an obviousness combination," including "that Ikonen already taught a Bluetooth solution with all of the purported benefits that Petitioner identified for its reasons to combine." PO Resp. 44.

However, it is Patent Owner that would like us to ignore all of the teachings of Ikonen and, rather, focus on only one embodiment.[10] Ikonen

[9] In the Sur-reply, Patent Owner argues that the Petition relies on Ikonen's Bluetooth and WLAN implementations. Sur-reply 18. In doing so, Patent Owner does not address the reasons to combine that expressly discuss combing Gu's UPnP with Ikonen's WLAN. *Id.* Further, Patent Owner's arguments do not identify any Bluetooth-specific teachings relied on in the Petition, only that certain relied-on paragraphs also discuss issues related to the Bluetooth implementation. Thus, we find Patent Owner's argument unconvincing. We further note that this is an improper new argument, first presented in the Sur-reply.

[10] In the Sur-reply Patent Owner goes even further and argues that Ikonen's discussion of WLAN is simply "boilerplate language" that shouldn't be given any weight. Sur-reply 14. We also disagree that the *specific* teaching

discusses a primary embodiment, such as discussed above with respect to Figure 3, that includes a LPRF radio block (i.e. Bluetooth) for the wireless communication unit. Ex. 1006 ¶¶ 29, 34. Ikonen also states:

> The presented embodiments should be considered illuminatory and not restrictive. . . . Correspondingly, instead of LPRF, where . . . the range is about 10 m, a WLAN (Wireless Local Area Network) connection can be used, which connection is another short range radio connection with a range of as much as 100 m.

Id. ¶ 39.

In other words, Ikonen teaches that the radio block, in the block diagram in Ikonen's Figure 3, can use a WLAN connection to provide the necessary wireless communication unit instead of LPRF/Bluetooth. The above paragraph also expressly teaches that LPRF (i.e. Bluetooth) has a limited range of about 10 m, and so, in applications that require a longer range, of as much as 100 m, a WLAN connection is preferred.

Patent Owner's argument attempts to ignore that Ikonen teaches that the system can be implemented with Bluetooth *or WLAN* for the wireless communication unit. Though we agree that the reference as a whole should be considered, we see no reason to disregard some teachings in favor of other teachings where there is no teaching away or other evidence that one system is superior to the other, or that one of skill in the art would select one system over the other. Here, Ikonen expressly teaches that in applications that require a longer range WLAN should be used "instead of LPRF [(i.e. Bluetooth)]." *Id.*; *see also* Reply 13–14 (discussing the benefit of "different connection types in different situations").

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that WLAN can be used instead of Bluetooth is merely generic boilerplate language that can be or should be ignored.

Thus, Patent Owner's arguments that Ikonen's Bluetooth implementation provides similar benefits to the combination proposed by Petitioner that relies Ikonen's WLAN implementation (PO Resp. 34–38, 44–45)[11] does not take away from Petitioner's combination or show that one of ordinary skill in the art would prefer Bluetooth over WLAN, especially where Ikonen teaches that WLAN is preferred where a longer range of wireless communication is desired or needed.

(2) Drawbacks of the Combination

Patent Owner also argues that "[t]he Petition ignores the significant drawbacks of implementing Gu's UPnP into Ikonen." PO Resp. 39. In particular, Patent Owner argues that "implementing UPnP into Ikonen would cause significant security problems (e.g., network security and data privacy)." *Id.* at 40 (citing Ex. 2032 ¶ 90).

Patent Owner argues that the '066 patent is concerned with security. *Id.* at 40–41 (citing Ex. 1001, 4:27–52). Patent Owner argues and offers evidence that since at least 2001 until now, UPnP has been known to have various security issues. *Id.* at 41–44 (citing Ex. 2032 ¶¶ 91–94, Exs. 2034–2037). Patent Owner concludes that because of the security concerns, especially with the '066 patent's concern for security, one of skill in the art "would not be motivated to implement UPnP from Gu into Ikonen." *Id.* at 44.

[11] 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. 38–39), as the Petition does not rely on these concepts alone for their reasons to combine Ikonen and Gu (*see supra* Section II.F.3 discussing the reasons to combine).

However, the '066 patent itself refutes Patent Owner's arguments. The '066 patent teaches that UPnP is a "protocol[] [that] may be implemented in the discovery process 502." Ex. 1001, 21:24–25, 27–30; *see also* Reply 15 (discussing same). Patent Owner does not contest that the '066 patent states that UPnP can be used or that this is evidence in support of Petitioner's reasons to combine even with the '066 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. 2034, 2 (discussing a "downloadable program that will fix the problem for you"); Ex. 2035, 8–9 (discussing vulnerabilities of outdated software); Ex. 2036, 7–8 (suggesting that users should update to the latest firmware to ensure they are protected from known vulnerabilities); 2037, 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 Prof. Bhattacharjee explains, security issues are routinely discovered with software and patched." Reply 15 (citing Ex. 1025 ¶¶ 47–50). 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. 2034–2037. Prof. Bhattacharjee also testifies that Patent Owner's own products in 2004 and today support UPnP. Ex. 1025 ¶¶ 51–52. 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.

In the Sur-reply, Patent Owner correctly notes that Petitioner's evidence about products introduced by Patent Owner is "evidence years later" after the invention. Sur-reply 18. However, Patent Owner's evidence suffers from this same drawback. Exhibits 2035–2037 are all dated over a decade after the effective filing date of the '066 patent. Ex. 1001, code (63). Exhibit 2034 is dated December 27, 2001 which is over a year after the first provisional filing relied on by the '066 patent and shortly after the filing of the first non-provisional filing. *Id.* 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 '066 patent itself, which teaches that it can be used. Ex. 1001, 21:24–25, 27–30.

(3) General Allegations

Patent Owner also makes a number of brief general allegations related to reasons to combine. PO Resp. 45–47; Sur-reply 16–17. Patent Owner argues that "the WLAN implementation of Ikonen would already have the same features as the Bluetooth implementation;" that the combination would "change the principle of operation of Ikonen;" and that there is no evidence "that UPnP is compatible with . . . WLAN." *Id.* These general allegations, for the most part, are conclusory. The main support offered is Patent Owner's declarant testimony, which is the same as the Patent Owner's Response word for word and thus provides no further factual support for the arguments. *Compare* Ex. 2032 ¶¶ 97–99, *with* PO Resp. 45–47.

Patent Owner argues that "the WLAN implementation of Ikonen taught the same benefits as the Bluetooth solution" because Ikonen teaches that WLAN can replace Bluetooth in the system. PO Resp. 45. Patent Owner argues that for this reason one of ordinary skill in the art "would not seek out UPnP for the WLAN implementation." *Id.* However, this general allegation

does not actually address how the WLAN implementation of Ikonen renders the proposed combination of Ikonen and Gu superfluous. It does not address Petitioner's reasons to combine or even show why "the WLAN implementation of Ikonen" would have "the same benefits as the Bluetooth solution" such that one of ordinary skill in the art "would not seek out UPnP for the WLAN implementation." We are thus left to guess Patent Owner's position and reasoning.

Patent Owner also asserts that "[t]he asserted modification of Ikonen's . . . WLAN short range wireless communication with Gu's UPnP networking framework . . . would change the principle of operation of Ikonen of using . . . WLAN for short range wireless discovery and communication." PO Resp. 45; *see also* Sur-reply 17. Again, Patent Owner does not develop or explain this argument.

Patent Owner argues that there is no evidence that UPnP is compatible with WLAN. *Id.* at 46; *see also* Sur-reply 17. However, Patent Owner does not address where the Petition and Petitioner's declarant specifically address this issue. *See* Pet. 42; Ex. 1002 ¶¶ 132–141.

In each of Patent Owner's general allegations, Patent Owner fails to address the evidence of record or provide sufficient specifics. Thus, Patent Owner does not persuasively identify any deficiencies in Petitioner's reasons to combine.

(4) Conclusion as to Claim 7

After our review of the arguments and evidence with respect to claim 7, we determine that Petitioner has proven, by a preponderance of the evidence, that claim 7 is unpatentable. As discussed above, the Petition shows how Ikonen or the combination of Ikonen and Gu teaches each of the limitations of claim 7. Patent Owner does not contest this showing. We also

determine that the Petition has proven, by a preponderance of the evidence, that one of skill in the art would have combined Ikonen and Gu.

4. Claims 8, 10

Petitioner argues that the combination of Ikonen and Gu renders obvious claims 8 and 10, which depend from claim 7. Pet. 52–55. Patent Owner does not separately address these claims. *See generally* PO Resp.

We have reviewed Petitioner's assertions with respect to claims 8 and 10 and the supporting evidence, and determine that Petitioner has proven, by a preponderance of the evidence that claims 8 and 10 are unpatentable.

G. 35 U.S.C. 103(a) – Ikonen, Gu, Garfunkel

Petitioner argues that the combination of Ikonen, Gu, and Garfunkel renders obvious claim 11, which depends from claim 7. Pet. 56–57. Patent Owner argues, without further explanation, that "adding another reference to Ikonen and Gu causes additional design costs and expenses that the '066 patent sought to avoid." PO Resp. 47. Patent Owner's declarant provides no factual basis to support this statement. Ex. 2032 ¶ 100. Both Patent Owner and their declarant fail to explain what additional design costs and expenses are implicated by the combination.

We have reviewed Petitioner's assertions with respect to claim 11 and the supporting evidence, and determine that Petitioner has proven, by a preponderance of the evidence, that claims 11 is unpatentable. For example, we find convincing Petitioner's argument that a person of skill in the art "would have been motivated to combine the teachings of Ikonen, Gu, and Garfunkel to enable Ikonen's link module to wirelessly download and install application software updates from a computer on the network." Pet. 56 (citing Ex. 1002 ¶¶ 178–180). Though the ability to install software updates would increase some costs, the updates would also "provide users with new

and improved features." *Id.* (citing Ex. 1005, 1:43–60). We determine that this is a sufficient reason to combine the references even with the potential tradeoff of added cost.

H. 35 U.S.C. 103(a) – Ikonen, Kammer and Ikonen, Kammer, Peng

Petitioner argues that the combination of Ikonen and Kammer renders obvious claims 14, 15, and 17. Pet. 57–75. Petitioner argues that the combination of Ikonen, Kammer, and Peng renders obvious claim 19. Pet. 75–77. Patent Owner argues that Kammer does not teach "advertising" and that the Petition does not provide sufficient reason to combine Ikonen and Kammer. PO Resp. 47–56. For the reasons expressed below, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 14, 15, 17, and 19 are unpatentable.

1. Kammer

Kammer is related to discovering name information for Bluetooth devices. Ex. 1007, Abstract. In Kammer an initiator device stores the address and user-friendly name of responding devices in a cache. *Id.* at 4:32–36. By using such a process, when the initiator device attempts to connect to the same responding device, it can retrieve the user-friendly name from its cache, and thereby avoid having to send extra messages to retrieve the user-friendly name. *Id.* at 4:36–48.

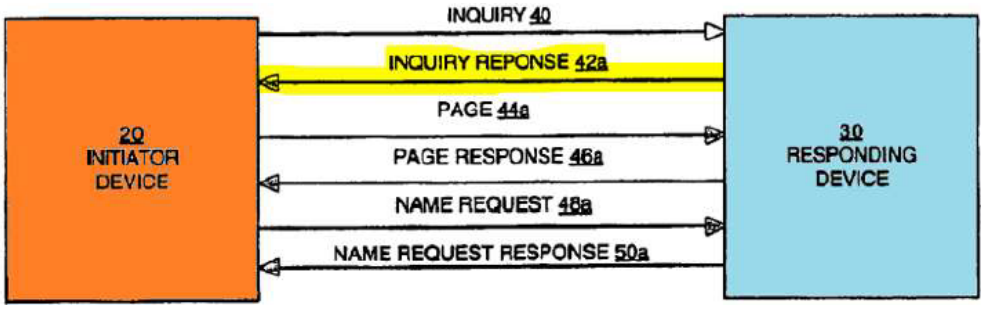
2. Claim 14

Independent claim 14 is similar, but not identical, to independent claim 7 discussed above. Petitioner relies on Ikonen in a similar manner to claim 7 discussed above, except that Petitioner relies on the Bluetooth implementation, rather than the WLAN implementation. *Compare* Pet. 61–73, *with id.* at 40–52. Patent Owner does not contest the Petition's showings with respect to Ikonen.

> Claim 14 also requires:
>
> (1) wirelessly broadcasting or advertising, . . . , availability of the wireless output controller to enable a client device, . . . , to wirelessly discover the wireless output controller for output service.

Ex. 1001, 35:5–12.

Petitioner argues that this is taught by Kammer when over Bluetooth "an initiator device broadcasts an inquiry and responding devices respond with inquiry responses." Pet. 65 (citing Ex. 1007, 1:61–2:17; 11:36–44). To assist in the explanation, Petitioner provides an annotated version of Kammer Figure 1, reproduced below. *Id.*



Petitioner's annotated version of Kammer Figure 1, above, schematically illustrates multiple communications between an initiator device (orange) in orange and a responding device (blue). Petitioner highlighted in yellow the second communication, Inquiry Response 42a. Petitioner states that a "POSA would have understood that by sending an inquiry response, a responding device is advertising its availability to enable the initiator device to discover it for output service." *Id.* (citing Ex. 1002 ¶¶ 206–207). Petitioner than explains that "[i]n combining Ikonen and Kammer as discussed, it would have been obvious to a POSA for Ikonen's link module to respond to inquiries from external user devices (client devices) to enable those devices to discover the link module." *Id.* (citing Ex. 1002 ¶ 208).

Concerning the reasons to combine Ikonen and Kammer, Petitioner argues that Ikonen and Kammer both teach using Bluetooth and that it would have been obvious to use "the Bluetooth inquiry and name discovery features described by Kammer." *Id.* at 61.

Petitioner argues that the combination would result in a number of benefits identified by Kammer that would provide one of skill in the art reason to make the combination:

> Kammer explains it is preferable for a user to select among Bluetooth devices based on their user-friendly names which can also include additional information (*e.g.*, manufacturer, features, location). Kammer [(Ex. 1007)] at 2:13-32; 11:13-18; Fig. 7B. Ikonen's link module could be displayed for selection as "TV Link - Family Room," for example. Kammer discloses the Bluetooth process that would be used for discovering the link module's user-friendly name. Kammer also discloses a straightforward caching enhancement that improves on the standard Bluetooth process in a way that speeds up name discovery and reduces power consumption. Kammer at 11:55-63; 14:30-42.

Pet 61–62.

Petitioner also cites to the Supreme Court's decision in *KSR* for the proposition that: "[I]f a technique has been used to improve one device, and a [POSA] would recognize that it would improve similar devices in the same way, [using] the technique is obvious unless its actual application is beyond his or her skill." *Id.* at 61 (quoting *KSR*, 550 U.S. at 417).

Patent Owner argues that Kammer fails to teach "advertising" and that the Petition fails to provide sufficient reasons to combine. PO Resp. 47–56. We address each argument below.

a) Advertising

Patent Owner argues that Petitioner "fails to explain how an 'inquiry response' message 42, 742, which is sent in response to an inquiry 40, 740, is . . . [an] advertisement of availability." PO Resp. 50. Patent Owner further argues that "the '066 Patent equates the word 'advertise' to a passive announcement" and not "a response to a specific inquiry" as in Kammer. *Id.* at 51–52 (citing Ex. 1001, 21:13–17, claim 14).

Petitioner responds that Patent Owner's claim construction is too narrow. Reply 15. Petitioner identifies the first definition in the Merriam-Webster's Collegiate Dictionary (10th ed., 2000) for "advertise" as "to make something known to: NOTIFY." Reply 16 (quoting Ex. 1032, 17). Petitioner further argues that "advertising" can be "unsolicited" or "targeted to particular recipients." *Id.* (citing Ex. 1025 ¶ 56). Petitioner further argues that "advertising" can be "provided in response to some earlier request or action" such as the case with banner ads or advertisements attached to search results of a search run on an internet search engine. *Id.* at 17 (citing Ex. 1025 ¶ 57).

The Federal Circuit has approved the use of dictionaries for guidance in claim construction, "so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record." *Helmsderfer v. Bobrick Washroom Equip., Inc*., 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of "consult[ing] a general dictionary definition of [a] word for guidance" in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) ("[O]ur decisions, including *Phillips,* 415 F.3d at 1322, do not preclude the use of general dictionary definitions as an aid to claim construction.").

Petitioner also contests Patent Owner's arguments about the teachings of the '066 Patent. *Id.* at 17–19. Looking to the claims, Petitioner argues that "restricting 'advertising' to unsolicited 'advertising' would effectively preclude the use of Bluetooth even though dependent claim 15 indicates claim 14 covers systems that use Bluetooth and the ['066] patent specification specifically suggests Bluetooth can be used for discovery." Reply 19 (citing Ex. 1025 ¶¶ 65–66). Petitioner's declarant testifies, among other things, that "[t]he inquiry procedure is a required first step for Bluetooth devices to discover information about one another." Ex. 1025 ¶ 66.

Claim 15, which depends from claim 14, requires that the "one or more wireless communication chips or chipsets are compatible, at least in part, with an implementation within IEEE 802.11 standards or *Bluetooth specifications* for establishing the wireless communication link." Ex. 1001, 35:55–59 (emphasis added). In claim 14, it is the one or more wireless communication chips or chipsets that performs the "advertising" to then establish the "wireless communication link." *Id.* at 35:5–6, 15–20.

Patent Owner does not contest that its construction of "advertising" would preclude the use of Bluetooth in claim 15 as argued by Petitioner. *See* Sur-reply. Because claim 15 is directed to "IEEE 802.11 standards or Bluetooth specifications," this would not render claim 15 per se invalid, but it would render the inclusion of Bluetooth as nonsensical, as for example, Bluetooth could not be used in the discovery process. As we first look to the claims when performing claim construction this argument weighs heavily against Patent Owner's position. *In re Power Integrations, Inc.*, 884 F.3d 1370, 1376 (Fed. Cir. 2018) ("Claim construction must begin with the words of the claims themselves." (brackets and citation omitted)).

Petitioner also argues that the only use of the term "advertise" in the '066 patent specification is not as limited as argued by Patent Owner. The parties are contesting the meaning of "advertise" in the following passage:

> Discovery process 502 may operate in a variety of scenarios. In one scenario, information apparatus 100 broadcasts a service request, for example printing, through wired or wireless signals. Service devices, such as output device 140 equipped with output controller 120, "listen to" such signals, "read" the request, "see" whether they can provide requested service, and respond if they can provide the requested service. Alternatively or in combination, all service devices can periodically or continuously announce or *advertise* the services they provide. Information apparatus 100 "listens to" such announcements and identifies the service it needs.

Ex. 1001, 21:6–17 (emphasis added).

Patent Owner argues that this passage teaches two scenarios, one, like Kammer, where there is a request for a service and a response, and the other where services are actively announced. Sur-reply 21; PO Resp. 51–52. Patent Owner argues that because the word "advertise" is used in the second scenario it cannot include the first. Sur-reply 21.

Petitioner argues that at most the second scenario discusses unsolicited advertising, but does not limit the definition of advertising to only unsolicited advertising as proposed by Patent Owner. Reply 17–19.

We agree with Petitioner that the '066 patent when using the word "advertise" in the second scenario does not limit the definition of "advertise" to apply only to that scenario. We see no reason why advertising a service in response to a request for a service should be excluded from the definition of "advertise" based on this one passage in the '066 patent. As noted above, our finding is further supported by the discussion of claim 15 above. We see no reason to limit the claims to only certain embodiments (i.e. scenarios)

disclosed in the specification to which in turn would render parts of claim 15 nonsensical.

Patent Owner does not contest that Kammer teaches "advertising" as required by claim 14 under Petitioner's claim construction. *See generally* PO Resp.

b) Reason to Combine

Patent Owner argues that the Petition fails to provide sufficient reasons to combine. PO Resp. 53–56.

As noted previously, Petitioner argues that the combination of Ikonen and Kammer would result in a number of benefits identified by Kammer that would provide one of skill in the art reason to make the combination. Pet 61–62. Two of these benefits are that Kammer's system 1) preferably allows "a user to select among Bluetooth devices based on their user-friendly names," while also "speed[ing] up name discovery and reduc[ing] power consumption" based on a "caching enhancement." *Id.*

Concerning the benefit of "user-friendly names," Patent Owner argues that "Petitioner fails to explain why combining Kammer's disclosure would add to Ikonen's link module, because Ikonen already discloses a complete link module with Bluetooth functionality." PO Resp. 54 (citing Ex. 2032 ¶ 112 where their declarant makes a similar statement).[12] Whether or not Ikonen has "a complete link module with Bluetooth functionality" (*id.*) or "already includes Bluetooth functionality for communicating with a mobile

[12] Because Patent Owner does not fully explain its position, it is unclear whether Patent Owner is admitting that Bluetooth as disclosed in Ikonen inherently includes all of the relied upon features in Kammer, thereby rendering the combination unnecessary to meet the limitations of the claims. *See* Reply 23–24.

device" (Sur-reply 24) does not negate Petitioner's argument that Ikonen's Bluetooth system would benefit from allowing "a user to select among Bluetooth devices based on their user-friendly names." It also does not show why this is not a valid reason why one of skill in the art would look to the teachings of Kammer to improve Ikonen.

Further, as discussed by Petitioner, "Ikonen itself does not say how the wireless device discovers the link module, forms a Bluetooth connection with the link module, or identifies the link module to the user." Reply 22. For this reason, the Petition reasonably relies on Kammer for these teachings. *Id.*

Concerning the benefit of "speed[ing] up name discovery and reduc[ing] power consumption" based on a "caching enhancement," Patent Owner argues that the claims don't discuss caching and so this benefit is not applicable. PO Resp. 55. However, Petitioner's proposed combination is directed to name discovery and these are identified as additional benefits resulting from Kammer's name discovery teachings. Thus, the fact that the claims are not directed to caching is beside the point.

c) Conclusion as to Claim 14

After our review of the arguments and evidence with respect to claim 14, we determine that Petitioner has proven, by a preponderance of the evidence, that claim 14 is unpatentable. We determine that the Petition shows how Ikonen or the combination of Ikonen and Kammer teaches each of the limitations of claim 14. Patent Owner does not contest the teachings of Ikonen and does not contest the teachings of the combination of Ikonen and Kammer under Petitioner's claim construction of "advertising." We also determine that the Petition has proven, by a preponderance of the evidence, that one of skill in the art would have combined Ikonen and Kammer.

3. Claims 15, 17, 19

Petitioner argues that the combination of Ikonen and Kammer renders obvious claims 15, and 17. Pet. 73–75. Petitioner argues that the combination of Ikonen, Kammer, and Peng renders obvious claim 19. Pet. 75–77. Patent Owner does not separately address these claims, but argues that these claims are patentable for the same reasons as claim 14. PO Resp. 52, 56.

We have reviewed Petitioner's assertions with respect to claims 15, 17, and 19, including the reason to combine Peng with Ikonen and Kammer, and the supporting evidence, and determine that Petitioner has proven, by a preponderance of the evidence that claims 15, 17, and 19 are unpatentable for the reasons provided in the Petition. Pet. 73–77.

I. 35 U.S.C. 103(a) – Yamaguchi, Gu and Yamaguchi, Gu, Garfunkel

Petitioner argues that the combination of Yamaguchi and Gu renders obvious claims 7, 8, and 10. Pet. 13–35. Petitioner argues that the combination of Yamaguchi, Gu, and Garfunkel renders obvious claim 11. Pet. 35–38. Patent Owner provides opposing arguments. PO Resp. 16–31. Because we determine that the challenged claims are unpatentable over the combination of either Ikonen and Gu, or Ikonen, Gu, and Garfunkel, we decline to address these grounds.

J. Motion to Exclude and Motion to Strike

Petitioner filed a Motion to Exclude Exhibit 2040. Paper 42. Exhibit 2040 was filed in support of Patent Owner's arguments that Yamaguchi is not prior art to the '066 patent. Sur-reply 9. As this Decision does not address the grounds involving Yamaguchi, we determine that the Motion to Exclude is moot.

Petitioner also filed a Motion to Strike Portions of Patent Owner's Sur-reply. Paper 39. The majority of the Motion to Strike deals with Patent Owner's arguments related to the grounds involving Yamaguchi. *Id.* at 1–5. As this Decision does not address the grounds involving Yamaguchi, we determine that these portions of the Motion to Strike are moot.

Petitioner also argues that the Sur-reply at pages 17–18 "belatedly attacks the Board's discussion in the institution decision of the Ikonen and Gu combination." *Id.* at 1. Petitioner notes that this argument does not refer to or cite Petitioner's Reply and argues that it does not appear directed at any argument in the Reply. *Id.*

Patent Owner responds by arguing that this argument does not raise any new issues that warrant striking this section of their Sur-reply. Paper 40, 2. Patent Owner further argues that in the context of the overall Sur-reply, this section is responsive to Petitioner taking the position that the combination of Ikonen and Gu relies on Ikonen's WLAN disclosure. *Id.*

Though it is proper to respond to a new argument in the Reply with new argument, it is not proper to present entirely new lines of argument that have not been presented before. Patent Owner's Sur-reply at page 18 presents a new line of argument that portions of the Petition "rely on Ikonen's sole LPRF/Bluetooth embodiment" and not on WLAN. We previously discussed how Patent Owner's argument does not actually identify any teaching specific to Bluetooth or that would not apply to the WLAN implementation and so it is unconvincing. *See supra* Section II.F.3.a)(1), n. 9. However, we also determine that this is an improper new argument.

We agree that section II.B of the Sur-reply does not raise any new issues that warrant striking this section of the Sur-reply. However, as is done

here, consistent with the Consolidated Trial Practice Guide: "In most cases, the Board is capable of identifying new issues or belatedly presented evidence . . . and disregarding any new issues or belatedly presented evidence . . . ." Consolidated Trial Practice Guide (Nov. 2019)[13] 80. For these reasons, Petitioner's Motion to Strike Portions of Patent Owner's Sur-reply is denied.

III. CONCLUSION

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

Claims	35 U.S.C. §[14]	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
7, 8, 10	103(a)	Ikonen, Gu	7, 8, 10	
11	103(a)	Ikonen, Gu, Garfunkel	11	
14, 15, 17	103(a)	Ikonen, Kammer	14, 15, 17	
19	103(a)	Ikonen, Kammer, Peng	19	
7, 8, 10	103(a)	Yamaguchi, Gu		
11	103(a)	Yamaguchi, Gu, Garfunkel		
Overall Outcome			7, 8, 10, 11, 14, 15, 17, 19	

IV. ORDER

In consideration of the foregoing, it is hereby:

[13] Available at www.uspto.gov/TrialPracticeGuideConsolidated.
[14] As explained above, we only reach the grounds involving Ikonen as they address all challenged claims.

ORDERED that claims 7, 8, 10, 11, 14, 15, 17, and 19 of U.S. patent 10,740,066 B2 have been shown to be unpatentable;

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;

FURTHERED ORDERED that, the Motion to Strike Portions of Patent Owner's Sur-reply (Paper 39) is denied; and

FURTHERED ORDERED that, the Motion to Exclude Exhibit 2040 (Paper 42) is denied as moot.

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