

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

S.M.R INNOVATIONS LTD and Y.M.R TECH LTD,  
Patent Owner.

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IPR2024-01048  
Patent 10,547,648 B2

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Before STACEY G. WHITE, CHRISTOPHER L. OGDEN, and  
MARY C. HOFFMAN, *Administrative Patent Judges*.

HOFFMAN, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1, 5–8, 10, 11, 13, 15, 16, 18, and 19 of U.S. Patent No. 10,547,648 B2 (Ex. 1001, “the ’648 patent”). S.M.R Innovations Ltd and Y.M.R Tech Ltd (collectively “Patent Owner”) filed a Preliminary Response (Paper 6). With our authorization, Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 7, “Prelim. Reply”) regarding the impact of the transfer of the related district court case to Patent Owner’s arguments regarding discretionary denial. Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review as to all claims and grounds set forth in the Petition. Paper 8 (“Inst. Dec.”).

After institution, Patent Owner filed a Patent Owner Response (Paper 15, “PO Resp.”), Petitioner filed a Reply (Paper 17, “Reply”), and Patent Owner filed a Sur-reply (Paper 22, “Sur-reply”). We held an oral hearing on October 28, 2025, and the transcript is of record. Paper 28 (“Tr.”).

We have jurisdiction pursuant to 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 challenged claims. Petitioner bears the burden of proving unpatentability of the challenged claims. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2021). Having reviewed the arguments and the supporting evidence, we determine Petitioner has shown, by a preponderance of the evidence, that claims 1, 5–8, 10, 11, 13, 15, 16, 18, and 19 are unpatentable.

A. REAL PARTIES IN INTEREST

Petitioner identifies Apple Inc. as the real party in interest. Pet. 68. Patent Owner identifies S.M.R Innovations Ltd and Y.M.R Tech Ltd as the real parties in interest. Paper 4, 2.

B. RELATED PROCEEDINGS

The parties identify *inter partes* reviews IPR2024-01047, IPR2024-01049, and IPR2024-01050, and *S.M.R Innovations Ltd. v. Apple Inc.*, 6:23-cv-00479, D.I. 1 (W.D. Tex. Jul. 1, 2023) (“the parallel proceeding”) as challenging the ’648 patent in federal district court.<sup>1</sup> Pet. 68; Paper 4, 3–4. Petitioner indicates that the parallel proceeding was transferred to the Northern District of California. Prelim. Reply 1.

II. BACKGROUND

A. THE ’648 PATENT (EX. 1001)

The ’648 patent “relates to routing of data including multimedia between electronic devices,” in particular, rerouting of incoming communications to devices other than the initial receiving device. Ex. 1001, 1:22–26. For example, as seen in Figure 1 reproduced below, an incoming call to a cellular phone may be routed to other electronic devices (a fixed telephone and a computer monitor). *Id.* at 5:57–62.

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<sup>1</sup> Patent Owner also identifies several other closed district court proceedings. Paper 4, 4.

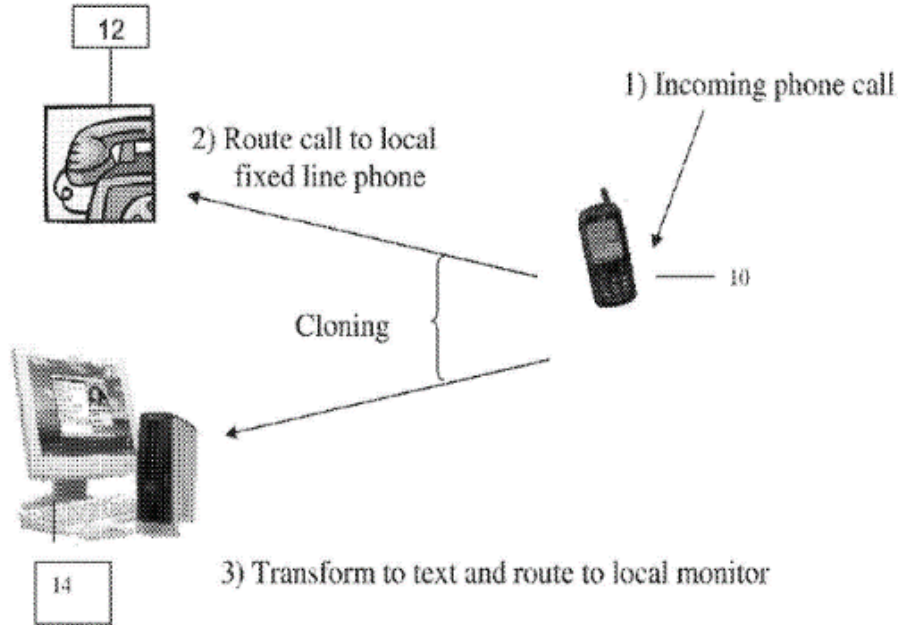


**Fig. 1**

Figure 1 illustrates three devices in proximity: cellular telephone 10, fixed telephone 12, and computer/monitor 14. Ex. 1001, 5:58–61. At step 1, an incoming voice call is received at the cellular telephone, which detects the presence of the fixed telephone and computer monitor. *Id.* at 5:61–66. At step 2, the cellular telephone routes the call to the fixed telephone. *Id.* at 5:65–66. At step 3, the cellular phone routes the call to the computer monitor. *Id.* at 6:2–5. Software, provided at either the cellular phone or the computer, may transform the call from voice to text. *Id.* at 6:5–7. The cellular telephone can clone, or duplicate, the call to route it to both the fixed telephone and the computer monitor. *Id.* at 9:62–63. Call rerouting is performed by an apparatus, shown below in Figure 2. *Id.* at 4:18–20.

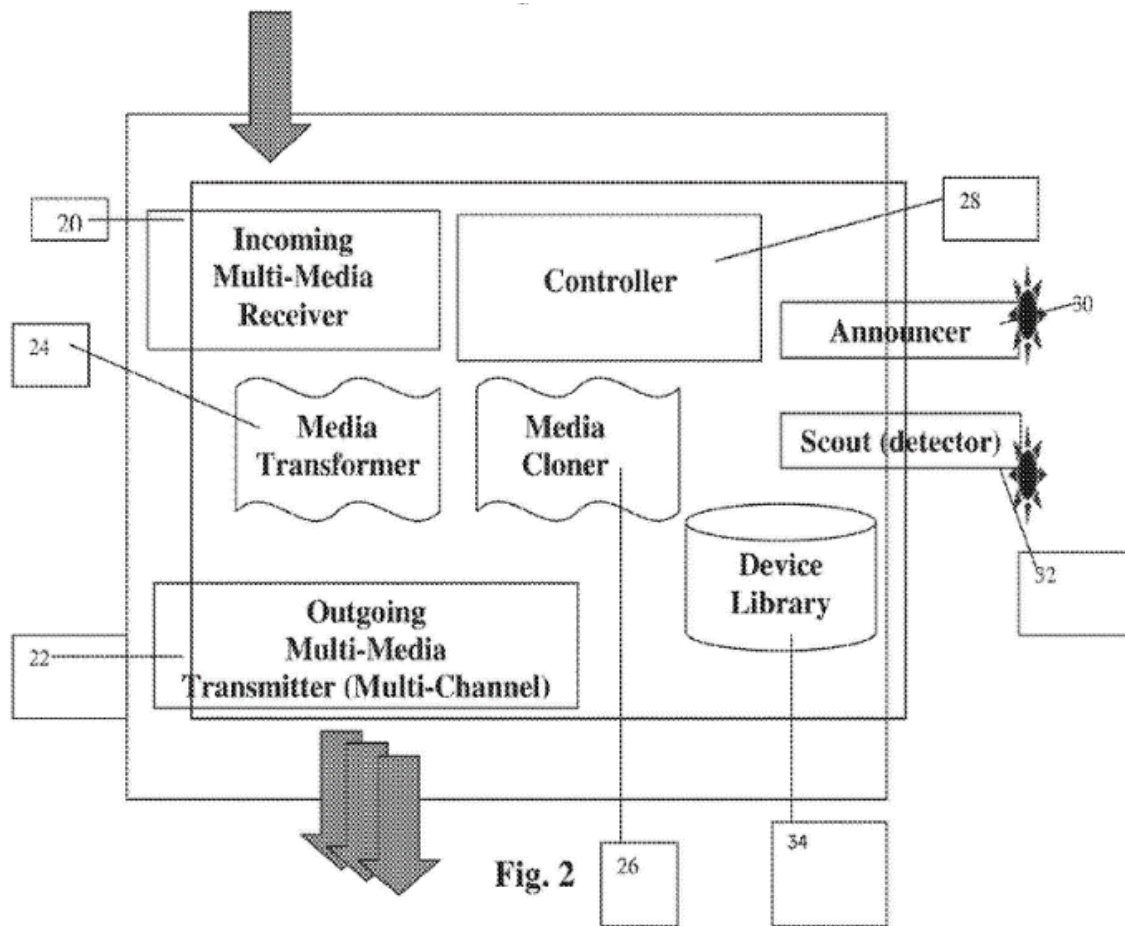


Figure 2 illustrates a block diagram for an apparatus, for attachment to an electronic device, that allows the electronic device to support rerouting. Ex. 1001, 4:18–20. The apparatus includes incoming multimedia receiver 20, media cloner 26, media transformer 24, outgoing multimedia transmitter 22, controller 28, and preferably includes announcer 30, scout (detector) 32, and device library 34. Ex. 1001, 7:6–32. The apparatus may be a physical card, chip, or attached stand-alone unit, or may be realized as software within the electronic device. *Id.* at 8:25–31.

In operation, multimedia receiver 20 receives incoming media content. Ex. 1001, 7:1–32. Controller 28 may direct the content to media cloner 26 (for duplicating content to be routed to more than one device)

and/or media transformer 24 (for transforming content, e.g., from voice to text). *Id.*; *id.* at 6:49–64. Controller 28 then directs the content to outgoing multimedia transmitter 22 for routing to one or more devices. *Id.* at 7:1–27.

Announcer 30 announces to the environment device availability for accepting routed media (i.e., whether the device is busy or not) and may also announce device type and usage conditions. Ex. 1001, 7:33–36. Scout 32 scans the environment to find devices available to accept routed media. *Id.* at 8:1–6. Announcing and scouting may be accomplished via active transmissions. *Id.* at 7:41–44, 8:1–6. For example, fixed phone 12 and computer 14 may actively transmit announcements while cellular phone 10 scans the environment to detect transmitted announcements. *Id.* Alternatively, the announcer may operate passively (reacting or reflecting). *Id.* at 7:53–58; 3:6–7. For example, announcer 30 may be a barcode sticker attached to the device, including device type and usage conditions, and scout 32 may be a barcode reader. *Id.*

Device library 34 contains information needed for communicating with the device (such as fixed phone 12 or computer 14), which typically includes usage related information, technical information regarding expected media formats and transmission technology specifications, including protocols, used by the device type, and pre-defined user preferences. Ex. 1001, 8:7–14.

#### B. CHALLENGED CLAIMS

The Petition challenges claims 1, 5–8, 10, 11, 13, 15, 16, 18, and 19 of the '648 patent. Pet. 1. Claims 1, 15, and 19 are independent claims. Ex. 1001, 12:59–14:58.

Claim 1 of the '648 patent is illustrative and reads as follows:<sup>2</sup>

1. *[pre]*A method of informing a device about an availability of media content at a mobile device connected to a local area network (LAN), comprising:
  - [1a]*using the mobile device for:
  - [1b]*identifying one or more available devices compatible to handle the media content and connected to the LAN;
  - [1c]*wirelessly communicating information to an intermediate routing device connected to the LAN for indirectly routing messages or media content to at least one of the one or more available devices via said intermediate routing device; and
  - [1d]*wirelessly signaling the one or more available devices indicating an availability of a media content at the mobile device;
  - [1e]*wherein the media content is originated from an external source disconnected from the LAN;
  - [1f]*wherein the media content selected from a group consisting of: audio content and video content.

Ex. 1001, 12:59–13:9.

Independent claims 15 and 19 recite corresponding subject matter.

Ex. 1001, 13:58–14:18, 14:31–53. Specifically, claim 15 recites “[a] mobile apparatus for informing a device about an availability of media content,” and claim 19 recites “[a] computer program product for a device for informing a user about an availability of media content at a mobile device.” *Id.*

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<sup>2</sup> For ease of reference, we include italicized bracketed designations for the preamble recitation and limitations of claim 1.

C. ASSERTED GROUNDS OF UNPATENTABILITY

The Petition advances four grounds, as summarized in the table below:

| Ground | Claim(s)<br>Challenged | 35 U.S.C. §         | Reference(s)/Basis                                                   |
|--------|------------------------|---------------------|----------------------------------------------------------------------|
| 1      | 1, 5, 6, 15, 18        | 103(a) <sup>3</sup> | Zhang, <sup>4</sup> Fillebrown, <sup>5</sup><br>Pasanen <sup>6</sup> |
| 2      | 7, 11, 16, 19          | 103(a)              | Zhang, Fillebrown, Pasanen,<br>Skinner <sup>7</sup>                  |
| 3      | 8, 10                  | 103(a)              | Zhang, Fillebrown, Pasanen,<br>Rofheart <sup>8</sup>                 |
| 4      | 13                     | 103(a)              | Zhang, Fillebrown, Pasanen,<br>Angelo <sup>9</sup>                   |

Pet. 4.

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<sup>3</sup> 35 U.S.C. § 103 (2006), *amended by* Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29 § 103, sec. (n)(1), 125 Stat. 284, 287, 293 (2011) (effective Mar. 16, 2013). The pre-AIA version of § 103 applies because the ’648 patent claims priority to U.S. applications filed before March 16, 2013, the effective date of the AIA amendments. *See* Ex. 1001, code (63); Pet. 2.

<sup>4</sup> Zhang, US 7,536,182 B2, issued May 19, 2009. Ex. 1004.

<sup>5</sup> Fillebrown et al., US 2001/0053134 A1, published December 20, 2001. Ex. 1005 (“Fillebrown”).

<sup>6</sup> Pasanen, US 6,587,450 B1, issued July 1, 2003. Ex. 1006.

<sup>7</sup> Skinner, US 6,703,930 B2, issued March 9, 2004. Ex. 1007.

<sup>8</sup> Rofheart et al., US 7,058,414 B1, issued June 6, 2006. Ex. 1008 (“Rofheart”).

<sup>9</sup> Angelo et al., US 2003/0061493 A1, published March 27, 2003. Ex. 1009 (“Angelo”).

In support of its arguments, Petitioner relies on declarations of Dr. Sayfe Kiaei. Exs. 1003, 1037. Patent Owner relies on a declaration of Mr. Karl Ginter. Ex. 2009.

### III. ANALYSIS

#### A. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)).

Petitioner asserts that a person of ordinary skill in the art (“POSITA”), at the filing date of the ’648 patent, “would have had a master’s degree in computer engineering, electrical engineering, or a related field, with at least 2 years of experience with wireless communications. Additional education or experience might substitute for the above requirements.” Pet. 3 (citing Ex. 1003 ¶¶ 28–29).

Patent Owner’s proposed formulation differs slightly. Patent Owner asserts “a POSITA would have had a Bachelor’s degree in Computer Science, Computer Engineering, Electrical Engineering, or a related field in computing technology, and at least two years’ experience in wireless communication and mobile devices, or equivalent education, research, experience, and knowledge.” PO Resp. 2–3 (citing Ex. 2009 ¶ 21). Patent Owner argues that Petitioner’s formulation is incorrect because “most people working in computer engineering and computer sciences did not have a master’s degree.” PO Resp. 3; Ex. 2009 ¶¶ 22–23.

Patent Owner does not contend that the differences between the parties' formulations would affect our patentability analysis. PO Resp. 2–4. Petitioner does not dispute that Patent Owner's declarant, Mr. Ginter, who has a bachelor's degree and years of experience in wireless communication, qualifies as a POSITA. Tr. 43; Ex. 2009 ¶¶ 5–10. Petitioner also concedes that its challenges do not hinge on which formulation we accept. Tr. 43. We agree that our decision would be the same regardless of the differences between the formulations.

We adopt Patent Owner's proposed formulation, which is supported by declaration testimony and generally consistent with the level of skill reflected in the '648 patent and the prior art of record. Ex. 2009 ¶¶ 21–25; Exs. 1001, 1004–1009.

#### B. CLAIM CONSTRUCTION

In an *inter partes* review, the Board construes the terms of a patent 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); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

In claim 1, step 1b recites “identifying one or more available devices compatible to handle the media content and connected to the LAN.” Ex. 1001, 12:63–64. Step 1d recites “signaling the one or more available devices indicating an availability of a media content at the mobile device.” *Id.* at 13:3–5.

Patent Owner argues that claim 1 requires sequential performance—step 1b before step 1d. PO Resp. 5–14. That is because, according to Patent

Owner, step 1d requires signaling the one or more devices previously “identified as available” in limitation 1b. Sur-reply 11.

We disagree. Although claim 1 recites step 1b before step 1d, method steps are not ordinarily construed to require a specific order of performance unless the claims or Specification directly or implicitly require that specific order. *See Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369–70 (Fed. Cir. 2003).

Here, nothing in the express claim language precludes performing step 1d before step 1b. The claim does not expressly recite signaling the device(s) previously “identified as available.” Nor does the claim otherwise specify that step 1b must precede step 1d. For example, the claim does not contain temporal terms like “then,” “next,” or “further.” Although Patent Owner points out that a term of step 1d (i.e., “the” one more available devices) derives antecedent basis from step 1b, this alone does not require performing step 1b before step 1d. PO Resp. 5, 10; Sur-reply 11. Rather, we agree with Petitioner that step 1d’s reliance on step 1b for antecedent basis only serves to clarify that the steps refer to the same device(s), not to determine the performance order. Reply 4, 5. We also agree with Petitioner that claim 1 inconsistently employs antecedent basis for other claim elements, which undermines Patent Owner’s argument that step 1d’s antecedent basis establishes a specific order. Reply 7 (referring to the recited “media content,” “the media content,” and “a media content”).

In addition, nothing in the Specification requires identifying devices as available before signaling those devices, or that the steps be mutually exclusive. There are no statements that this step order is important nor disclaimer of any other order. According to the Specification, announcer 30

and scout 32, which are the components that function to identify devices as available prior to the signaling, are only “preferably provided.” Ex. 1001, 7:28–31. Thus, the Specification only expresses a *preference* for an embodiment in which devices are identified as available before they are signaled to indicate availability of media content.

Regarding the parties’ dispute over Scenario 3A of the Specification, the evidence supports Petitioner’s position, although it is not conclusive. In Scenario 3A, a user “points” a cell phone at a landline to detect whether that landline is available. Ex. 1001, 11:46–60. Petitioner argues that Scenario 3A depicts signaling the landline prior to identifying its availability, because the pointing involves signaling from the cell phone about a call to the landline. Reply 11–12. Patent Owner argues that the pointing does not involve such signaling. Sur-reply 18–19. We agree with Petitioner that Scenario 3A would require the cell phone to signal the landline device before determining its availability. Because the purpose of the cell phone’s signal to the landline device is to potentially reroute a phone call, the preponderance of the evidence suggests that a person of ordinary skill in the art would have understood such signaling to indicate that the cell phone has available media content (i.e., the phone call). This is particularly true in the embodiment where the landline has a passive (“reacting”) announcer because, especially in that case, the landline device does not announce its availability until after the cell phone attempts to reroute the available phone-call content to it. *See* Ex. 1001, 7:53–55. This understanding is supported by Patent Owner’s declarant’s testimony on passive scenarios, explaining that pointing involves sending a signal (“IR link”) and starting an

interrogation to determine the device availability, which would be consistent with performing step 1b after step 1d. Ex. 1036, 68:7–16, 81:23–82:3.

Furthermore, even if Patent Owner was correct that Scenario 3A requires identifying availability before signaling, we will not read such preferred embodiments from the specification into claim language that is not so limited. *See SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (care should be taken “not to import into a claim limitations that are not part of the claim”); *see also In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“limitations are not to be read into the claims from the specification”); *see also IQRIS Techns. LLC v. Point Blank Enterprises, Inc.*, 2025 WL 727717, \*4 (Fed. Cir. 2025) (“It is the claims, not the preferred embodiments, that define the metes and bounds of the patentee’s invention.”) (citing *Phillips*).

Turning to Patent Owner’s arguments regarding a claim amendment added during prosecution, we see nothing that indicates a surrender of non-sequential order. PO Resp. 10 (citing Ex. 1002, 240, 262); Sur-reply 12. The claim amendment simply corrected step 1d’s antecedent basis in response to the Examiner’s indefiniteness rejection, thereby indicating that the device(s) of limitations 1b and 1d are the same. Ex. 1002, 240, 262, 293).

Patent Owner cites specific caselaw to argue that “principles of claim construction” warrant imposing a specific order of steps, which we now address in turn.

Patent Owner cites *Meade Instruments Corp. v. Yamcon, Inc.*, 197 Fed. Appx. 929 (Fed. Cir. 2006) (“*Meade*”), in which the claim recited “providing data from said database to a user . . . the provided data.” The

court held that, due to antecedent basis, the disputed claim element, “the provided data,” referred to the earlier recited data (i.e., from the database and provided to the user). *Meade* at 933. Unlike in *Meade*, there is no dispute here whether the device(s) in steps 1b and 1d are the same—Petitioner agrees with Patent Owner on this point. Reply 4. Furthermore, in *Meade*, the disputed claim element included the past participle adjective “provided,” clearly indicating that the data was previously provided. Here, the phrase “the one or more available devices” does not include an analogous past participle adjective (e.g., the claim does not recite “the one or more *identified* available devices”) and thus, does not indicate that the device(s) were previously identified.

Patent Owner additionally cites *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348 (Fed. Cir. 2003), which involved interpreting antecedent basis in a statute, not a patent claim. Regardless, as discussed above, Petitioner agrees that antecedent basis necessitates that steps 1b and 1d refer to the same device(s). Reply 4.

Next, Patent Owner relies on *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392 (Fed. Cir. 2014) and *Function Media, L.L.C. v. Google Inc.*, 708 F.3d 1310 (Fed. Cir. 2013) to argue that step 1b must be performed before step 1d as a matter of logic or grammar. We disagree. Nothing in claim 1 logically or grammatically requires a specific step order. Indeed, the claim still makes grammatical and logical sense when the steps are considered in reverse order (i.e., wirelessly signaling one or more available devices before identifying one or more available devices as compatible and connected) and reads on, as Patent Owner acknowledges, broadcasting “in the hopes that there is an available device somewhere out

there.” PO Resp. 11. As discussed above, the Specification discloses such an embodiment. *See* Ex. 1001, 7:28–30 (disclosing that announcer device 30 and scout 32, which function to identify device availability prior to the signaling, are only preferably provided), 7:53–54 (disclosing announcer device 30 can be “reacting” instead of actively transmitting availability status to the environment).

For similar reasons, Patent Owner’s reliance on *Wi-Lan, Inc. v. Apple Inc.*, 811 F.3d 455 (Fed. Cir. 2016) (“*Wi-Lan*”) also falls short. *Wi-Lan*’s claim recited “to produce modulated data symbols” and “to combine the modulated data symbols for transmission.” *Wi-Lan* at 459. The court in *Wi-Lan* held that the steps must be sequentially performed because the symbols must be modulated before being combined for transmission. *Id.* at 463. We agree with Petitioner that *Wi-Lan*’s second step (combining modulated data symbols) acted on the results of its first step (producing the modulated data symbols). Reply 6. In the instant case, step 1d does not act on the results on step 1b because, as discussed above, we do not interpret step 1d as requiring devices previously identified as available.

Patent Owner also cites *Hytera Communs. Co. v. Motorola Sols., Inc.*, 841 Fed. Appx. 210 (Fed. Cir. 2021) (“*Hytera*”). Though antecedent basis was one factor in the court’s decision, the parties in *Hytera* also agreed that four of the five total method steps were required to be performed in the order written. *Hytera* at 218. The court rejected the position that one step could be performed out of order when all other steps required a specific order. *Id.*

Here, there is no such agreement between the parties, and we further determine that the other method steps are not limited to the order written.<sup>10</sup>

Patent Owner also cites *Medtronic v. Teleflex Life Scis. Ltd.*, 2024 U.S. App. LEXIS 6703 (Fed. Cir. 2024) (“*Medtronic*”). Like in *Hytera* above and unlike the instant case, the parties agreed that most of the claimed steps were performed in the order written. *Id.* at 11. Furthermore, the specification in *Medtronic* “tout[ed] the advantages of performing . . . steps in the recited order,” which is also unlike the instant case. *Id.* at 10. Here, Patent Owner does not identify, nor do we see, any disclosure in the Specification touting the advantages of identifying device availability before the signaling. *See generally* PO Resp.; Sur-reply.

Based on the forgoing reasons, we do not agree that step 1b must precede step 1d, and we decline to deviate from the general rule that method claims are ordinarily construed to not require an order.

Even if claim 1 did require that step 1b precede step 1d, we also disagree with Patent Owner’s position that step 1b identifies devices “as available.” PO Resp. 15–17; Sur-reply 12, 17–18. We disagree with Patent Owner that, based on grammar rules, limitation 1b’s “identifying one or more available devices” requires identifying device(s) *as available*. PO Resp. 15–17 (citing Exs. 2014, 2009 ¶¶ 42–44). As explained in our Institution Decision, the identified devices must be available, but there is no requirement to identify *that* the devices are available. Dec. 19. Identifying

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<sup>10</sup> Patent Owner similarly argues that step 1b must precede step 1c because step 1c’s recitation of “the one or more available devices” derives antecedent basis from step 1b. PO Resp. 11. For similar reasons as step 1d, step 1c’s “the one or more available devices” are not required to be previously identified as available.

(detecting/discovering) available devices is not synonymous with identifying (determining) their availability status. This is supported by the Specification, which discusses both identifying available devices (i.e., identifying devices, which are available) and identifying devices as available. *See* Spec. 9:27–30 (“[i]ndirect routing still requires the device . . . to detect available receiving devices and determine their capability and availability” (emphasis added)).

Claim 19 also recites the identical phrase “one of more available devices” but does not recite “identifying” or otherwise require determining availability. Ex. 1001, 14:40. This further demonstrates that the recited phrase “one of more available devices” in claim 1 is properly interpreted to include one or more devices that are (happen to be) available, and that “identifying one of more available devices” is not limited to identifying whether devices are available.

In addition, claims 2 and 3 (not challenged in this proceeding) recite “wherein said one or more available devices are identified from pre-defined user preferences,” and where the “pre-defined user preferences are made on the mobile phone.” Ex. 1001, 13:10–14. This suggests that the “identifying” step can be carried out internally on the mobile device without necessarily checking whether the identified device is actually available at the time limitation 1b is performed.

Patent Owner’s declarant also interprets limitation 1b as not requiring identification of availability status. *See, e.g.*, Ex. 1036, 79:1–5 (“1(b) identifies there is a device that may or may not be able to instantaneously satisfy the request, but it does not know that . . . it is physically able to do that today, right now”), 83:1–8 (“I have to identify the device and know it's

responding in 1(b) . . . . And it would be nice to know if it were busy or not instantaneously available. But that's not required.”).

Because we determine that the claim does not require sequential performance nor identifying device availability status, we need not resolve the parties’ dispute over the construction of “available.” *See* Reply 14 (citing Ex. 1036, 78:5–14) (arguing that Patent Owner’s declarant broadly interprets “available” as “physically there and able to be communicated with”); Tr. 39:18–19 (arguing that “available” means something more than “on and connected”).

Noting that claim 15 is not a method claim and does not recite steps, to the extent applicable, our analysis for claim 1 similarly applies to corresponding independent claim 15. Ex. 1001, 13:58–14:58.

We determine that no further express claim construction is necessary for our Decision, apart from that discussed in our below analysis. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only terms in controversy must be construed “and only to the extent necessary to resolve the controversy”) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

## C. OVERVIEW OF ASSERTED PRIOR ART

### 1. Zhang (Ex. 1004)

Zhang describes “[a] method and system for extending the capabilities of a handheld device by providing a framework within which small handheld devices can use their helper environment, the devices around them, to expand their limited capabilities.” Ex. 1004, code (57). An exemplary helper environment is illustrated in Figure 1, below.

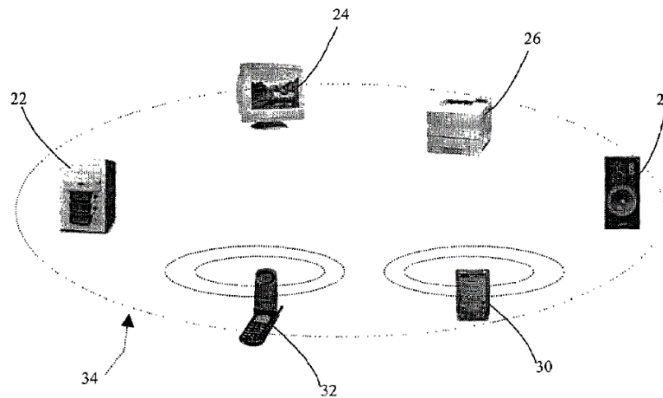


Fig. 1 A Helper Environment

Figure 1, above, depicts helper environment 34 with two handheld mobile devices (Personal Digital Assistant (“PDA”) 30 and cellular phone 32) and four helper servers (storage device 22, display device 24, printing device 26, and audio device 28). Ex. 1004, 3:25–31. The mobile devices use the helper environment, via a wireless LAN (“WLAN”) framework, to extend their limited capabilities. *Id.*; *id* at 4:46–49. For example, the PDA can locate a nearby display device to better display content. *Id.* at 3:32–37.

A mobile device interacts with its helper environment according to the following steps. First, during device discovery, the mobile device identifies nearby helper servers. Ex. 1004, 3:47–48. Second, during service query, the mobile device queries the identified helper servers to determine whether they can provide the helper service (in other words, whether the helper servers offer the needed helper service). *Id.* at 3:49–64. Third, during request transfer, the mobile device sends a service request to a selected helper device to determine whether the helper device can service the request at the moment. *Id.* at 53–54, *id.* at 4:1–5. The helper device may then grant, queue, or deny the service request. *Id.* at 7:23–26. Once the helper device grants the mobile device’s service request, the mobile device begins

transferring data. *Id.* at 4:5–8. After data transfer, the helper device operates on the received data. *Id.* The mobile device remotely controls the task on the helper server according to user interaction via a remote-control interface description on the mobile device. *Id.* at 3:54–60.

2. *Fillebrown (Ex. 1005)*

Fillebrown describes a wireless router for a personal wireless network. Ex. 1005, code (57). Router 120 routes data traffic between devices within the personal wireless network and extends the range of the personal wireless network by amplifying routed signals. *Id.* ¶¶ 16, 17, 34, 49, 57, 61.

3. *Pasanen (Ex. 1006)*

Pasanen describes “a wireless local area network comprising at least one server device, one or several peripheral devices, and means for transferring information between the server device and the peripheral devices.” Ex. 1006, 1:1–6. Figure 1, below, illustrates an embodiment of the wireless local area network.

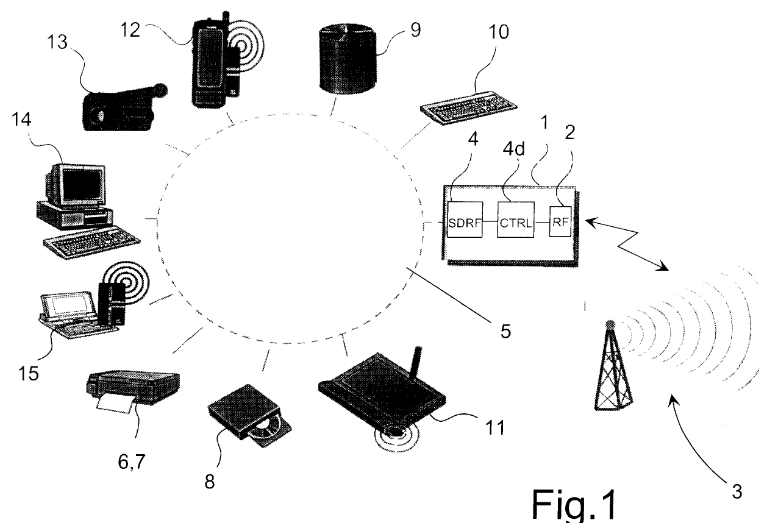


Figure 1, above, depicts wireless local area network 5 with server device 1 (a mobile station) and peripheral devices 6–15 (printer, telecopier

device, CD-ROM reading device, mass storage, auxiliary display, etc.). Ex. 1006, 4:20–43. Mobile station 1 comprises means 2 for setting up a data transmission connection with long-distance mobile communication network 3, means 4 for setting up the short-distance wireless local area network between the mobile station and peripheral devices, and controller 4d. *Id.* at 4:44–62.

In use, the local area network allows for data transmission, such as a phone call, from the mobile station to the peripheral devices and vice versa. *Id.* at 5:17–23, 13:51–53. The phone call to the mobile station may originate from the mobile communication network. *Id.* at 4:44–46, 13:51–53. Peripheral device 12, a wireless audio interface, is equipped with a microphone and an earpiece to be used instead of the mobile station’s microphone and earpiece. *Id.* at 4:31–34.

#### 4. *Skinner (Ex. 1007)*

Skinner describes “methods and apparatus for detecting an event, and for alerting a user of the occurrence of the event by way of a message, wherein the user can be at nearly any local or remote location, and wherein the user can establish criteria for the routing of the message as well as the mode in which the message is presented.” Ex. 1007, 3:14–19.

Sensor 102 detects an event (e.g., receipt of a signal such as a telephone ring signal). *Id.* at 4:9–20. Connected to the sensor, controller 104 then signals communication device 114 (e.g., pager, cellular phone, or any internet-enabled device) via communication network 112 regarding the event. *Id.* at 3:34–39, 3:64–4:3. The communication device then presents the signal from the controller in a form communicable to the user, such as audible beeps or a flashing light. *Id.* at 6:35–40.

5. *Rofheart (Ex. 1008)*

Rofheart describes a method and system for enabling device functions based on distance information. Ex. 1008, code (54). According to one embodiment, a user enables communications between the user's device and one or more remote wireless devices via a touch screen interface on the user's device. *Id.* at 28:22–38, Fig. 9. The interface displays the user device and remote devices in the form of a graphical map. *Id.* The user is able to easily associate the physical locations of the remote devices relative the user's device with the corresponding screen locations. *Id.*

6. *Angelo (Ex. 1009)*

Angelo “relates generally to the secured transmission of information, such as audio, video or a combination of audio and video . . . particularly, the invention relates to a portable electronic device capable of encrypting and sending audio to a destination device.” Ex. 1009 ¶ 4. The information is encrypted in real time so that real-time, two-way communication can occur. *Id.* at 9.

D. GROUND 1: OBVIOUS OVER ZHANG, FILLEBROWN, PASANEN

Under Ground 1, Petitioner contends that claims 1, 5, 6, 15, and 18 are unpatentable under § 103(a) as obvious over Zhang, Fillebrown, and Pasanen. Pet. 9–44.

1. *Legal Principles*

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). When a ground in a

petition is based on a combination of references, we consider “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Id.* at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). We base our obviousness inquiry on factual considerations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) any objective indicia of obviousness or non-obviousness that may be in evidence.<sup>11</sup> *See Graham*, 383 U.S. at 17–18.

We begin our analysis with independent claim 1. Considering these factors, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable as obvious over Zhang, Fillebrown, and Pasanen, for the reasons explained below.

## 2. *Claim 1 Preamble*

The preamble of claim 1 recites “[a] method of informing a device about an availability of media content at a mobile device connected to a local area network (LAN),” wherein the method comprises certain features. Ex. 1001, 12:59–61. Petitioner identifies Zhang’s mobile device (e.g., cellular phone 32) and helper servers connected to WLAN helper environment 34, where the cellular phone informs a helper server, such as audio device 28, of data (e.g., audio data) at the cellular device. Pet. 9–13 (citing, e.g., Ex. 1001, 2:16–19, 3:25–64, 4:32–58, 7:1–14, Fig. 1); Ex. 1003 ¶¶ 90–97. Patent Owner does not specifically contest this. *See* PO Resp.

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<sup>11</sup> Neither party argues that there are objective indicia of obviousness or non-obviousness, so this factor is not part of our analysis. *See generally* Pet.; PO Resp.

We need not decide whether the preamble is limiting because we are persuaded that Zhang teaches the preamble of claim 1, for the reasons given by Petitioner.

3. *Disputed Limitations: 1b and 1d*

(a) Petitioner's Contentions

Limitation 1b recites “identifying one or more available devices compatible to handle the media content and connected to the LAN.” Ex. 1001, 12:63–64. Petitioner identifies Zhang’s teaching that the mobile device (cellular phone 32) scans a WLAN framework (helper environment 34) to discover connected helper servers, such as audio device 28. Pet. 14–16 (citing Ex. 1004, 3:25–43, 4:35–50; Ex. 1003 ¶¶ 91–95, 99–102). Petitioner explains that, during Zhang’s “device discovery” and “service query” steps, the mobile device identifies nearby helper servers and determines their compatibility (i.e., whether a helper server offers the needed helper service). Pet. 14–15 (citing Ex. 1001, 3:25–64, 4:1–5, 6:40–44; Ex. 1003 ¶¶ 91–95, 113–114).

Petitioner further explains that, during the “request transfer” step, Zhang’s mobile device determines helper server availability based on the helper server’s response to the mobile device’s service request. *Id.* For example, the helper server “informs the [mobile device] whether its service request can be granted right away, has to be queued, or is denied (e.g., not enough total resource on the server or authentication failure).” *Id.* (citing Ex. 1004, 7:22–25).

Limitation 1d recites “wirelessly signaling the one or more available devices indicating an availability of a media content at the mobile device.” Ex. 1001, 13:3–5. Petitioner identifies Zhang’s sending the mobile device’s

service request to the helper server, which occurs during the request transfer step discussed above. Pet. 23–24 (citing Ex. 1004, 4:1–8; Ex. 1003 ¶ 114). Petitioner explains that the mobile device and the helper server (wirelessly) communicate over the WLAN. *Id.* at 24.

(b) Patent Owner Arguments; Analysis

Patent Owner argues that the claim requires identifying the device(s) as available (step 1b) before wirelessly signaling those devices (step 1d), and that Petitioner’s mapping is in error because Zhang identifies devices as available after wirelessly signaling them. PO Resp. 19–25; Sur-reply 16–22.

As discussed above, we disagree with Patent Owner’s claim interpretation, namely, that step 1b must precede step 1d and that step 1b requires identifying the device(s) *as available*. *Supra* Section III.B. As such, we do not agree that Petitioner’s mapping is in error even though Zhang identifies devices as available after wirelessly signaling them.

We are persuaded that Zhang teaches limitations 1b and 1d, for the reasons given by Petitioner.

4. *Undisputed Limitations: 1a and 1c*

Patent Owner does not further dispute Petitioner’s contentions regarding limitations 1a and 1c, which are discussed briefly below.

Limitation 1a recites “using the mobile device for [the subsequent steps],” and Petitioner identifies the “mobile device” as Zhang’s mobile device (e.g., cellular phone 32). Ex. 1001, 12:62; Pet. 14 (citing Ex. 1004, 3:25–43).

Limitation 1c recites “wirelessly communicating information to an intermediate routing device connected to the LAN for indirectly routing

messages or media content to at least one of the one or more available devices via said intermediate routing device.” Ex. 1001, 12:65–13:2.

Petitioner argues that limitation 1c is taught by the combination of Zhang with Fillebrown. Pet. 16–19. Petitioner identifies Zhang’s teaching of transmitting commands and media content from the mobile device to helper servers via a wireless network, WLAN. *Id.* at 16–18 (citing Ex. 1004, 3:25–60, 4:1–8, 4:32–50, 7:1–14, 8:13–22; Ex. 1003 ¶¶ 103, 104, 114–118). Acknowledging that Zhang does not expressly teach an intermediate routing device, Petitioner identifies Fillebrown’s intermediate wireless router (wireless router 120) for providing network range extension by amplifying routed signals. *Id.* at 19–22 (citing Ex. 1005 ¶¶ 16, 34, 49, 51, 57, 61). Petitioner contends a POSITA would have been motivated to modify Zhang to route data via an intermediate wireless router pursuant to Fillebrown to provide network range extension, and that such a modification would have had a reasonable expectation of success because Zhang and Fillebrown teach the same network setup (i.e., WLAN using a wireless protocol/standard such as IEEE 802.11 or Home RF). Pet. 22–23 (citing Ex. 1003 ¶¶ 109–111)

Patent Owner does not specifically contest Petitioner’s contentions with respect to limitations 1a and 1c, other than to argue that step 1c, like step 1d, must be performed after step 1b. PO Resp. 11. For similar reasons as discussed above with respect to step 1d (*supra* Section III.B), we do not agree. We are sufficiently persuaded that the Zhang-Fillebrown-Pasanen combination teaches each of these limitations for the reasons given by Petitioner. *See generally* PO Resp.

5. *Disputed Limitations: 1e and 1f*

Limitation 1e recites “wherein the media content is originated from an external source disconnected from the LAN.” Ex. 1001, 13:6–7. Limitation 1f recites “wherein the media content selected from a group consisting of: audio content and video content.” *Id.* at 13:8–9.

(a) Petitioner’s Contentions

Petitioner argues that limitations 1e and 1f are taught by the combination of Zhang, Fillebrown, and Pasanen. Pet. 30. Petitioner states that while “Zhang does not expressly describe receiving a phone with the cellular phone,” Zhang’s cellular phone 32 can receive phone calls over a cellular phone network. Pet. 28 (citing Ex. 1005, 3:25–29; Ex. 1003 ¶ 121). Petitioner also identifies Pasanen’s phone call audio from an external cellular communication network. Pet. 31–32 (citing, e.g., Ex. 1005, 2:27–40, 4:20–37, 13:1–61, Figs. 1, 3). Petitioner further contends a POSITA would have been motivated to modify the combined teachings of Zhang and Fillebrown to receive media content (a phone call) originating from a disconnected, external source (a cellular communication network), as taught by Pasanen, allowing a user to participate in a cellular phone call via Zhang’s helper server (e.g., a more capable speaker and microphone). *Id.*; *id.* at 31 (citing Ex. 1003 ¶¶ 123–124). Petitioner contends such a modification would have had a reasonable expectation of success because Zhang’s cellular phone already includes hardware and programming instructions to receive cellular phone calls and to communicate with a helper server. Pet. 31 (citing Ex. 1003 ¶¶ 123–124).

(b) Patent Owner Arguments; Analysis

Patent Owner argues that Petitioner failed to explain how the proposed combination (i.e., modifying the combined Zhang-Fillebrown cellular phone to receive a cellular call, in view of Pasanen) would have operated. PO Resp. 25–36; Sur-reply 2–10.

To the extent Patent Owner argues that Pasanen lacks the necessary hardware/software for routing a cellular call over Zhang-Fillebrown’s network, this argument does not address the combination as proposed, which relies on Zhang-Fillebrown’s hardware/software. PO Resp. 27–32; *see* Reply 15–16 (“While Petitioner disagrees with many of PO’s (and its expert’s) interpretations of *Pasanen*, the entire discussion is irrelevant to this proceeding because the proposed combination—as PO and its expert concede—does not rely on *Pasanen*’s hardware or communication mechanisms.”).

Patent Owner also argues that modifying Zhang-Fillebrown’s cellular phone to receive a cellular call, in view of Pasanen, would not have been obvious because Zhang-Fillebrown does not involve transcoding or otherwise include the necessary hardware/software for routing a cellular call over Zhang-Fillebrown’s 802.11 or HomeRF network. PO Resp. 33–34 (citing Ex. 2009 ¶¶ 70–74).

We disagree. Petitioner met its burden to show that the combination would have been obvious. Zhang teaches a cellular phone (which logically receives cellular calls) and routing media to audio devices on its network. Ex. 1004, 3:25–29. Missing in Zhang is an explicit teaching that its cellular calls (as opposed to other media) are routed. Pasanen explicitly teaches routing cellular calls to networked audio devices. Ex. 1006; 4:20–37. Taken

together, routing Zhang’s cellular calls across its network would have been obvious to a POSITA. Patent Owner’s argument that Zhang-Fillebrown’s 802.11 or HomeRF network do not support routing cellular calls discounts Zhang’s teaching that “its network can be built on top of many different kinds of communication media” including but not limited to 802.11 and HomeRF, as well as the “optional HomeRF features” Petitioner claims would sufficient to implement the claimed functionality. Ex. 1001, 4:46–50; Reply 20–22 (citing Ex. 1037 ¶¶ 13–15); Sur-reply 3–6 (arguing that HomeRF’s isochronous mode and DECT protocol are optional and would not have been necessary to practice Zhang’s subject matter).

And though Zhang does not discuss transcoding or specific HomeRF features/protocols, which Patent Owner argues are necessary for routing cellular calls across Zhang’s 802.11 or HomeRF network, we agree with Petitioner that the ’648 patent also provides scant technical details as to how its system routes cellular calls over its local network, suggesting that such was well known at the time. Reply 17 (citing, e.g., Ex. 1001 7:9–25).

Furthermore, it is well accepted that “it is not necessary that a device shown in one reference . . . be physically inserted into the device of the other. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (internal citations omitted); *see also In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) (“[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”). Moreover, the artisan is not

compelled to blindly follow the teaching of one prior art reference over the other without the exercise of independent judgment. *See Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed. Cir. 1984); *see also KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”).

Naturally, some adaptation (e.g., transcoding or utilizing the optional HomeRF features) of Zhang-Fillebrown’s existing hardware might be required to receive a cellular call and route it over its network in view of Pasanen. *See* PO Resp. 32 (“Modifying Zhang in the manner proposed by Petitioner and its expert . . . would require a technique called transcoding . . .”). Patent Owner has not pointed to any evidence showing that adding transcoding functionality would have required more than ordinary skill. Although Patent Owner’s declarant, Mr. Ginter, characterizes a 2011 white paper as describing “the technical challenges involved in transcoding,” Mr. Ginter never opines that transcoding or the other modifications required to route a cellular call over Zhang-Fillebrown’s would have been outside the knowledge and ability of a POSITA. Ex. 2009 ¶¶ 70–75 (citing Ex. 2017, Section 2, ¶ 1). Patent Owner also relies on testimony from Petitioner’s litigation expert, who stated that “there wasn’t much going on” with respect to real-time audio streaming during the relevant timeframe; however, this testimony not sufficient to show that adding transcoding to Zhang-Fillebrown’s existing hardware to reroute cellular calls would have been beyond the level of ordinary skill. PO Resp. 35–36 (citing Ex. 2013, 31:2–12, 32:25–33:13); Reply 19, fn. 6.

Based on the forgoing, we are persuaded that the Zhang-Fillebrown-Pasanen combination teaches limitations 1e and 1f for the reasons given by Petitioner.

6. *Conclusion as to Claim 1*

For the above reasons, we determine that Petitioner has shown, by a preponderance of the evidence, that the Zhang-Fillebrown-Pasanen combination teaches or suggests all the limitations of claim 1. We, therefore, determine that Petitioner has shown that claim 1 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, and Pasanen.

7. *Claim 5*

Limitation 5 depends on claim 1 and recites “wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices in response to a receipt of a response to the signaling received from the one or more device.” Ex. 1001, 13:17–21.

Petitioner relies on its mapping for claim 1, specifically noting Zhang’s signaling between a mobile device and helper server. Pet. 32. Petitioner contends, “[a] POSITA would have understood that a phone call would have been routed to an available device after receipt of a response to the signaling received from the one or more available devices.” *Id.* (citing Ex. 1003 ¶ 126).

Patent Owner argues that 1) Petitioner conclusory analysis fails to map claim 5 with particularity, and 2) Zhang does not teach routing content “in response to a receipt of a response to a service query.” PO Resp. 36–38. We disagree on both counts.

First, as Petitioner explains, claim 1 is directed to signaling devices for routing media such a phone call, and claim 5 adds the step of actually

routing the call. Reply 22–23. These two steps are so closely intertwined that Petitioner’s reliance on its analysis for claim 1 is easily understandable and proper. Furthermore, it is clear that “Zhang’s . . . signaling” in the Petition (Pet. 33) was referring to Zhang’s service query and service request during request transfer.

Second, we find that Zhang’s signaling does account for the additional limitations in claim 5. Patent Owner’s argument that Zhang “use[s] various helper servers responses to a service query” to route a phone call implicitly concedes that Zhang routes in response to a receipt of a response to a service query. That Zhang uses more than one response is of no consequence, because claim 5 does not exclude using more than one response. *See* Reply 23 (further explaining how Zhang accounts for claim 5’s “in response to a receipt of response” requirement) (citing Ex. 1004, 7:58–60).

We determine that Petitioner has shown, by a preponderance of the evidence, that the Zhang-Fillebrown-Pasanen combination teaches or suggests all the limitations of claim 5. We, therefore, determine that Petitioner has shown that claim 5 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, and Pasanen.

8. *Claim 6*

Limitation 6 depends on claim 1 and recites “wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices while the phone call is ongoing using the mobile device.” Ex. 1001, 13:22–25.

Petitioner relies on its mapping for claim 1. Pet. 33. Petitioner contends that “[a] POSITA would have been motivated to provide the user an option to invoke the helper server when the phone call is ongoing,

providing the user control of whether and when to use the wireless speaker/microphone, rather than the mobile device’s native input/output.” *Id.* (citing Ex. 1003 ¶ 127). Petitioner explains that routing an ongoing call supports Zhang’s “seamless” mobility embodiment. *Id.*

Patent Owner argues that Petitioner cannot rely on “common sense” to supply a missing limitation, in this case, routing an *ongoing* call. PO Resp. 40. Patent Owner’s argues that, due to the state of the technology at the time of invention (i.e., pre-smartphone), routing an *ongoing* call is more than a mere peripheral limitation. *Id.* at 41.

We disagree. Petitioner does not rely on common sense to supply a missing limitation. Zhang’s “seamless” mobility embodiment, where “continuity” is maintained across multiple devices while media is streamed, teaches routing ongoing media. Pet. 33 (citing Ex. 1003 ¶ 127); Ex. 1004, 10:58–65 (teaching, at a high level, rerouting streaming media). A POSITA would have found it obvious to extend this teaching to include Zhang-Fillebrown-Pasanen’s media—a cellular call. Although Patent Owner argues that Zhang’s seamless-mobility embodiment includes “no statement that the user has control over the transition between helper servers,” this does not show that Zhang lacks routing ongoing media or that it would not have been obvious to extend Zhang’s teaching to cellular calls.

Moreover, Patent Owner’s argument that routing an ongoing call at the time of the invention was not obvious, “given the limitations of such devices in that ‘pre-smartphone ‘era,’” falls short because the ’648 patent also teaches routing an ongoing call at a high level, providing few technical details as to how to route or reroute streaming media. PO Resp. 41. This

suggests that such routing/rerouting was well known to a POSITA at the time.

We determine that Petitioner has shown, by a preponderance of the evidence, that the Zhang-Fillebrown-Pasanen combination teaches or suggests all the limitations of claim 6. We, therefore, determine that Petitioner has shown that claim 6 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, and Pasanen.

9. *Claim 15*

Independent claim 15 is an apparatus claim that recites subject matter corresponding to claim 1. Ex. 1001, 13:58–14:18. Claim 15 also recites “a receiver,” and limitations 15b (“a controller adapted to identify one or more available devices”) and 15d (“wherein the controller is adapted to wirelessly signaling the one or more available devices”) reflect limitations 1b and 1d, discussed above. Ex. 1001, 12:63–13:5, 14:4–16.

Like the arguments made with respect to claim 1, Petitioner advances arguments that map with particularity every limitation of claim 15 to teachings in Zhang, Fillebrown, and Pasanen, and further relies on its analysis for claim 1. Pet. 33–43 (citing Ex. 1004, 3:25–31, 4:35–38; Ex. 1005 ¶¶ 16, 49, 54, 64, 67, 87, 95; Ex. 1006, 4:20–62, 5:52–6:22, 10:52–56, 12:47–57, 13:2–13, 13:51–55, Fig. 3; Ex. 1003 ¶¶ 130–149). Petitioner additionally identifies Zhang’s receiver and other mobile device hardware and software, which identifies and wirelessly signals available compatible connected helper servers and/or Petitioner identifies Pasanen’s controller 4d. Pet. 34, 37 (citing Ex. 1004, 3:25–31, 4:35–38; Ex. 1003 ¶¶ 135–138), 43 (citing Ex. 1003 ¶¶ 130, 147–148).

Patent Owner argues that the proposed Zhang combination fails to teach or suggest limitations 15b and 15d for the same reasons as limitations 1b and 1d (i.e., that identifying devices as available must occur before wirelessly signaling the available devices). PO Resp. 42–44. Patent Owner argues that Petitioner’s obviousness analysis is improper for the same reasons as advanced as claim 1 (i.e., that the Petition failed to adequately explain how the references could be combined such that the proposed combination would work.). *Id.* For the reasons discussed above with respect to claim 1, we do not agree. *See supra* Sections III.D.3, III. D.5.

Patent Owner does not specifically contest Petitioner’s remaining contentions with respect to claim 15 (PO Resp. 42–44), and we are sufficiently persuaded that the Zhang-Fillebrown-Pasanen combination teaches claim 15 for the reasons given by Petitioner. We, therefore, determine that Petitioner has shown that claim 15 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, and Pasanen.

*10. Undisputed Claim 18*

Claim 18 depends from claim 15 and further specifies that the media content is “phone call data.” Ex. 1001, 14:26–29.

Petitioner relies on its analysis for claims 1 and 15 and further identifies Pasanen’s phone call routed to audio interface 12 with microphone and speaker. Pet. 44. Patent Owner does not specifically contest Petitioner’s contentions with respect to claim 18 (PO Resp. 44), and we are persuaded that the Zhang-Fillebrown-Pasanen combination teaches claim 18 for the reasons given by Petitioner.

E. GROUND 2: OBVIOUS OVER ZHANG, FILLEBROWN, PASANEN,  
SKINNER

Under Ground 2, Petitioner contends that claims 7, 11, 16, and 19 are unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Skinner. Pet. 44–56.

1. *Undisputed Claims 7, 11, and 16*

Claim 7 depends from claim 1 and recites “wherein the one or more available devices is triggered by the signaling to perform one or more of the following: flash light, ring, and play a loudspeaker sound.” Ex. 1001, 13:26–29. Petitioner identifies Skinner’s audible “beeps” and visual “flashing lights” indications triggered by an event (such as an incoming phone call). Pet. 44–45 (citing Ex. 1007, 6:25–65, 3:29–42, 7:15–8:67). Petitioner explains that “[a] POSITA would have been motivated to modify *Zhang-Fillebrown-Pasanen* per *Skinner*’s teachings to perform audible and/or visible indications . . . to inform a user of availability of media content at a mobile device (e.g., incoming phone call).” Pet. 46 (citing Ex. 1003 ¶¶ 154–155). Petitioner explains that it was a known technique and there was a reasonable expectation of success because Zhang-Fillebrown-Pasanen and Skinner teach similar devices. *Id.*

Claim 11 depends from claim 1 and recites “wherein the one or more available devices are triggered by the signaling to inform a user about an availability of media content at the mobile device.” Ex. 1001, 13:42–45. Claim 16 depends from claim 15 and recites similar subject matter. *Id.* at 14:19–22. For claims 11 and 16, Petitioner relies on its analysis for claim 7 and further contends that Zhang-Fillebrown-Pasanen-Skinner teaches that one or more available devices (e.g., helper servers) are triggered by

signaling to inform a user of availability of media content at the mobile device. Pet. 47 (citing Ex. 1007, 7:30–67; Ex. 1003 ¶ 156), 48. Petitioner contends that “[a] POSITA would have understood that such alerts inform a user of media content (e.g., incoming phone call) available at the modified Zhang’s mobile device.” *Id.*

Patent Owner does not specifically contest Petitioner’s contentions with respect to claims 7, 11, and 16, except to contend that Zhang-Fillebrown-Pasanen does not teach or suggest claims 1 or 15 (PO Resp. 44–45), which we addressed above. We are sufficiently persuaded that the Zhang-Fillebrown-Pasanen-Skinner combination teaches the limitations of claims 7, 11, and 16 for the reasons given by Petitioner. We, therefore, determine that Petitioner has shown that claims 7, 11, and 16 are unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Skinner.

## 2. *Claim 19*

Independent claim 19 is similar to claims 1 and 15 except claim 19 focuses on the device that is informed about available media content at the mobile device and then informs the device user about such media content. *See* Ex. 1001, 12:59–14:53. Claim 19 also requires an audio/visual indication or alert, which is similar to claims 7, 11, and 16. *Id.*

Where claim 19 overlaps with claims 1, 7, 11, 15 and 16, Petitioner presents similar evidence and arguments. Pet. 48–56. We now address with greater specificity Petitioner’s contentions with respect to claim 19 and provide our analysis.

*1. Claim 19 Preamble*

The preamble of claim 19 recites “[a] computer program product for a device for informing a user about an availability of media content at a mobile device, the computer program product comprising . . . .” Ex. 1001, 14:30–33.

Petitioner identifies Zhang’s programming instructions, and alternatively contends that “[a] POSITA would have been motivated to modify the *Zhang* combination to utilize programming instructions to perform the functions . . . in view of *Skinner*.” Pet. 48 (citing Ex. 1003 ¶¶ 158–162). Petitioner identifies Skinner’s audio/visual alerts and computer executable steps and equipment for performing such alerts to inform a user of an event (e.g., incoming cellular phone call). *Id.* at 49 (citing Ex. 1007, 7:15–8:67, 3:29–42, Fig. 11; Ex. 1003 ¶¶ 160–162), 46 (citing Ex. 1003 ¶¶ 154–155). Petitioner contends the proposed modification would have had a reasonable expectation of success because, e.g., Zhang, Pasanen, and Skinner teach similar devices. *Id.* at 50.

Patent Owner does not specifically contest Petitioner’s arguments about the preamble. PO Resp. 45–52. We need not decide whether the preamble is limiting because we are persuaded that Zhang teaches the preamble of claim 1, for the reasons given by Petitioner.

*2. Undisputed Limitations: 19a, 19b, 19c, 19e, and 19f*

Limitation 19a recites “a non-transitory computer readable storage medium having stored thereon.” Ex. 1001, 14:34–35. Petitioner identifies, e.g., Skinner’s controller memory of controller 104. Pet. 51 (citing Ex. 1007, 5:55–56, Fig. 1; Ex. 1003 ¶ 163).

Limitation 19b recites “first program instructions executable by a processor to wirelessly communicating information to an intermediate routing device connected to a local area network (LAN) for indirectly receive messages or media content routed from one or more available devices connected to the LAN via the intermediate routing device.”

Ex. 1001, 36–41. Petitioner relies on similar evidence and arguments presented for limitations 1(c), 15(a), and 19(preamble). Pet. 51. Petitioner identifies Fillebrown’s intermediate routing device and program instructions executable by a processor for performing the claimed wireless communication functionality. *Id.* at 51–54 (citing Ex. 1003 ¶¶164–167).

Limitation 19c recites “second program instructions executable by the processor to wirelessly receive signal from the mobile device indicating an availability of a media content at the mobile device.” Ex. 1001, 14:42–45. Petitioner relies on its evidence and arguments for claims 1d, 15, 19(preamble)–19b. Pet. 55. Specifically, Petitioner identifies Zhang’s mobile device “service request” to the helper device as the wireless signal indicating an availability of media content at the mobile device. Pet. 23 (citing Ex. 1003 ¶ 114). When Zhang’s helper service grants the request, Zhang’s mobile device routes an incoming phone call (per Pasanen) to the help server. Pet. 26.

Limitation 19e recites “wherein the media content is originated from an external source disconnected from the LAN.” Ex. 1001, 14:51–52. Limitation 19f recites “wherein the media content selected from a group consisting of: audio content, text content and video content.” *Id.* at 14:53–54. For limitations 19e and 19f, Petitioner presents similar evidence and arguments as that advanced for limitations 1e, 19(preamble)–19b, and claim

15 (i.e., that the Zhang combination, specifically Pasanen, teaches a cellular call). Pet. 55.

Patent Owner does not specifically contest Petitioner’s contentions with respect to limitations 19a, 19b, 19c, 19e, and 19f beyond arguing that claim 19 fails for the same reasons as for claim 1 (i.e., because Petitioner failed to adequately explain how the proposed combination would work). PO Resp. 45–54. We disagree for the reasons discussed above (*supra* Section III.D.3), and we are sufficiently persuaded that the Zhang-Fillebrown-Pasanen-Skinner combination teaches limitations 19a, 19b, 19c, 19e, and 19f for the reasons given by Petitioner.

*3. Disputed Limitation: 19d*

Limitation 19d recites “third program instructions executable by the processor to inform the user of said device about an availability of a media content at the mobile device with one or more of the following: flash light, ring, and play a loudspeaker sound.” Ex. 1001, 14:46–50.

a. Petitioner's Contentions

Petitioner relies on its evidence and arguments for claims 1d, 7, 11, 15, 16, and 19 (preamble). Pet. 44–47. Petitioner explains that, “[i]n the proposed combination, *Zhang*’s audio helper device is modified pursuant to *Skinner* such that a user is informed (e.g., via ringing) when the call is routed from *Zhang*’s mobile device.” Reply 25. Petitioner explains that “in the context of the proposed combination’s phone call in which media [is] routed *through* the mobile phone,” the media content remains available at the mobile phone even after having been routed to the device. *Id.* at 26.

b. Patent Owner's Arguments; Analysis

Patent Owner argues that Zhang-Fillebrown-Pasanen-Skinner does not teach or suggest informing the user of a helper server about an availability of media content *at the mobile device* because “[n]one of [the four references] seeks to inform the user of a device about media content (such as a phone call) that is available for rerouting from another device.” PO Resp. 43. Rather, “any flashing or ringing at the helper device (per Skinner’s teaching) would not notify a user that media content is currently **available** at the mobile device” *because the media content will have already been rerouted to the helper device*. *Id.* at 49. Said simply, Patent Owner argues that, in the proposed combination, routed media at Zhang’s helper device is no longer available at Zhang’s cellular phone. Pet. 46 (citing Ex. 1003 ¶¶ 110–111) (explaining that the device user can choose whether to accept the media content because the user is informed about media content at the mobile device but the media content has not yet been rerouted). PO Resp. 46 (citing Ex. 2009 ¶¶ 110–111).

Petitioner has the better position, i.e., that a rerouted cellular phone call will still remain “available” at the cellular phone. Nothing in limitation 1d requires informing a device user for the purpose of providing that user with the ability to choose whether to accept or decline routing of the media content from the mobile phone. In Petitioner’s proposed combination, Skinner’s audio/visual alert indicates an incoming/routed phone call; at this point, *media content is available at both Zhang’s cellular phone and helper device*. As Petitioner’s counsel explained at the oral hearing, “a phone call comes into your cell phone, you reroute the audio, that phone call is a continuous media session . . . . there is a continuous stream of media through the phone. So there is always media available on the cell phone in our proposed combination.” Tr. 27:18–28:2. Petitioner’s position is consistent with Pasanen’s teaching of a data transmission connection between cellular network 3 and a helper device (wireless audio interface device 12) using mobile device 1, Zhang’s teaching of seamless mobility, and our understanding of what a POSITA would have understood at the time. Ex. 1006, 4:22–46, 5:17–23, 13:51–61; Ex. 1004, 10:58–65.

We, therefore, determine that Petitioner has shown that claim 19 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Skinner.

F. GROUND 3: OBVIOUS OVER ZHANG, FILLEBROWN, PASANEN, ROFHEART

Under Ground 3, Petitioner contends that claims 8 and 10 are unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Rofheart. Pet. 56–62.

*1. Claims 8 and 10*

Claim 8 depends on claim 1 and recites “comprising setting up a wireless communication link between the at least one of the one or more available devices based on a user interaction made with the mobile device or the one or more available devices and causing a routing of the media content to the at least one device via the wireless communication link.” Ex. 1001, 13:30–35. Claim 10 depends on claim 1 and recites “wherein the identifying comprises triggering a display of a menu by the one or more available devices or the mobile device to allow a user to perform a user interaction.” *Id.* at 13:38–41.

Petitioner relies on its arguments and evidence for claim 1 and additionally contends that mobile device interfaces (menu displays) used to control helper environments (e.g., by a user to select a helper server) were well known in the art and described by Rofheart. Pet. 56–62 (citing, e.g., Ex. 1008, 5:37–45, 27:46–38, 30:10–52, Fig. 9; Ex. 1003 ¶¶ 177–185). Petitioner contends that a POSITA would have been motivated to modify the Zhang combination with Rofheart’s user interface/menu display to advantageously give a user the ability to select which audio device to send a phone call, and that the combination has a reasonable expectation of success because the cited references involve media routing. *Id.* at 62–63; Ex. 1003 ¶¶ 177, 184.

Patent Owner does not contest Petitioner’s contentions with respect to claims 8 or 10, except to contend that Zhang-Fillebrown-Pasanen does not teach or suggest claim 1, which we addressed above. We are sufficiently persuaded that Zhang-Fillebrown-Pasanen-Rofheart teaches the limitations of claims 8 and 10, for the reasons given by Petitioner. We, therefore,

determine that Petitioner has shown that claims 8 and 10 are unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Rofheart.

G. GROUND: OBVIOUS OVER ZHANG, FILLEBROWN, PASANEN, ANGELO

Under Ground 4, Petitioner contends that claim 13 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Angelo. Pet. 63–65.

1. *Claim 13*

Claim 13 depends on claim 1 and recites “encrypting and routing the media content to the one or more available devices.” Ex. 1001. 13:52–54.

Petitioner relies on its arguments and evidence for claim 1 and additionally identifies Angelo’s teaching of secured transmission of audio (e.g., voice) communicated between portable devices by utilizing encryption. Pet. 63–64 (citing Ex. 1009 ¶¶ 4, 9–10, 16–27, 29, 31). Petitioner contends that a POSITA would have been motivated to modify the Zhang combination with Angelo’s encryption to provide a secure environment for communications, and there was a reasonable expectation of success in the combination because, e.g., the references involve portable devices. *Id.* at 65 (citing Ex. 1003 ¶¶ 186–188).

Patent Owner does not contest Petitioner’s contentions with respect to claim 13, except to contend that Zhang-Fillebrown-Pasanen does not teach or suggest claim 1, which we addressed above, and we are sufficiently persuaded that the Zhang-Fillebrown-Pasanen-Angelo teaches claim 13 for the reasons given by Petitioner. We, therefore, determine that Petitioner has shown that claim 13 is unpatentable under § 103(a) as obvious over Zhang, Fillebrown, Pasanen, and Angelo.

#### IV. CONCLUSION

We conclude that Petitioner has shown that claims 1, 5–8, 10, 11, 13, 15, 16, 18, and 19 of the '648 patent are unpatentable by a preponderance of the evidence.

In summary:

| <b>Claims</b>              | <b>35<br/>U.S.C.<br/>§</b> | <b>Reference(s)</b>                     | <b>Claims<br/>Shown<br/>Unpatentable</b> | <b>Claims<br/>Not Shown<br/>Unpatentable</b> |
|----------------------------|----------------------------|-----------------------------------------|------------------------------------------|----------------------------------------------|
| 1, 5, 6,<br>15, 18         | 103(a)                     | Zhang, Fillebrown,<br>Pasanen           | 1, 5, 6, 15, 18                          |                                              |
| 7, 11, 16,<br>19           | 103(a)                     | Zhang, Fillebrown,<br>Pasanen, Skinner  | 7, 11, 16, 19                            |                                              |
| 8, 10                      | 103(a)                     | Zhang, Fillebrown,<br>Pasanen, Rofheart | 8, 10                                    |                                              |
| 13                         | 103(a)                     | Zhang, Fillebrown,<br>Pasanen, Angelo   | 13                                       |                                              |
| <b>Overall<br/>Outcome</b> |                            |                                         | 1, 5–8, 10, 11,<br>13, 15, 16, 18,<br>19 |                                              |
|                            |                            |                                         |                                          |                                              |

#### V. ORDER

It is

ORDERED that Petitioner has shown that claims 1, 5–8, 10, 11, 13, 15, 16, 18, and 19 of the '648 patent are unpatentable;

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FURTHER ORDERED that because this decision is final, a party 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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