

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

Applicant:	Janik	Roku, Inc.
Case No.:	IPR2019-01621	v.
Filing Date:	June 10, 2010	Universal Electronics, Inc.
Patent No.:	7,821,504 B2	
Title:	Controlling Device with Dual-Mode, Touch- Sensitive Display	

**PATENT OWNER UNIVERSAL ELECTRONICS INC.'S
NOTICE OF APPEAL**

**Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
Madison Building East, 10B20
600 Dulany Street
Alexandria, VA 22314**

Notice is hereby given, pursuant to 37 C.F.R. §90.2(a), that Patent Owner Universal Electronics Inc. (“UEI”) hereby appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered on May 12, 2021, (Paper 37), and from all underlying findings, determinations, rulings, opinions, orders, and decisions regarding U.S. Patent No. 7,821,504. A copy of the Final Written Decision is attached.

In accordance with 37 C.F.R. §90.2(a)(3)(ii), UEI further indicates that the issues on appeal include, but are not limited to, the Patent Trial and Appeal Board’s determination of the unpatentability of Claims 1 and 5 of UEI’s U.S. Patent No. 7,821, 504 under 35 U.S.C. § 103.

Copies of this Notice of Appeal are being filed simultaneously with the Patent Trial and Appeal Board. In addition, three copies of this Notice Appeal, along with the required docketing fees, are being filed with the Clerk’s Office for the United States Court of Appeals for the Federal Circuit.

Respectfully Submitted,
GREENBERG TRAURIG, LLP

Date: July 9, 2021

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CERTIFICATE OF FILING

I hereby certify that, in addition to being filed electronically through the Patent Trial and Appeal Board's PRPS System, the original version of the foregoing, PATENT OWNER UNIVERSAL ELECTRONICS INC.'S NOTICE OF APPEAL, was filed by hand on this 9th day of July, 2021, with the Director of the United States Patent and Trademark Office, at the following address:

**Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
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CERTIFICATE OF FILING

I hereby certify that three (3) true and correct copies of the foregoing, PATENT OWNER UNIVERSAL ELECTRONICS INC.'S NOTICE OF APPEAL and the docketing fee of \$500 are being filed by CM/ECF and [Pay.gov](https://www.pay.gov), were served by hand on this 9th day of July, 2021 with the Clerk's Office of the United States Court of Appeals for the Federal Circuit, at the following address:

**United States Court of Appeals for the Federal Circuit
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the below date, I caused a true and correct copy of the foregoing, PATENT OWNER UNIVERSAL ELECTRONICS INC.'S NOTICE OF APPEAL, to be served upon the following counsel of record via electronic mail:

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Exhibit A

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROKU, INC.,
Petitioner,

v.

UNIVERSAL ELECTRONICS, INC.,
Patent Owner.

IPR2019-01621
Patent 7,821,504 B2

Before PATRICK M. BOUCHER, MINN CHUNG, and
SHARON FENICK, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

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

I. INTRODUCTION

In this *inter partes* review (“IPR”), instituted pursuant to 35 U.S.C. § 314, Roku, Inc. (“Petitioner”) challenges the patentability of claims 1 and 5 (the “challenged claims”) of U.S. Patent No. 7,821,504 B2 (Ex. 1001, “the ’504 patent”), owned by Universal Electronics, Inc. (“Patent Owner”). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we determine Petitioner has shown by a preponderance of the evidence that claims 1 and 5 of the ’504 patent are unpatentable.

II. BACKGROUND

A. Procedural History

On September 18, 2019, Roku, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of the challenged claims of the ’504 patent. Patent Owner filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

On May 13, 2020, applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we instituted an *inter partes* review of all challenged claims of the ’504 patent based on all grounds presented in the Petition. Paper 13 (“Inst. Dec.”), 41–42.

After institution, Patent Owner filed a Patent Owner Response (Paper 18, “PO Resp.”), Petitioner filed a Reply to the Patent Owner Response (Paper 20, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 22, “PO Sur-reply”). An oral hearing was held on February 4, 2021, and a copy of

the hearing transcript has been entered into the record. Paper 36 (“Tr.”). After the hearing, with the Board authorization (Paper 32), the parties filed supplemental briefing to address alleged improper new arguments and evidence included in Petitioner’s Reply. Papers 34, 35.

B. Related Matters

According to Petitioner, the ’504 patent has been asserted in the following patent infringement cases: *Universal Electronics, Inc. v. Logitech Inc.*, 8-11-cv-01056 (C.D. Cal. 2011) (terminated); *Universal Electronics, Inc. v. Peel Technologies, Inc.*, 8-13-cv-01484 (C.D. Cal. 2013) (terminated); and *Universal Electronics, Inc. v. Roku, Inc.*, 8:18-cv-01580 (C.D. Cal. 2018) (pending) (“the related litigation”). Pet. 1–2. Patent Owner identifies the same cases as related matters. Paper 3, 2.

The ’504 patent is one of several patents owned by Patent Owner that are challenged by Petitioner in various petitions for *inter partes* review, including in IPR2019-01595, IPR2019-01608, IPR2019-01612, IPR2019-01613, IPR2019-01614, IPR2019-01615, IPR2019-01619, and IPR2019-01620. *See id.* The parties also note that the ’504 patent has been the subject of *Inter Partes* Reexamination 95/001,760 (“the ’504 Patent Reexamination Proceeding” or “the ’504 Patent Reexamination”) (Pet. 2; Paper 3, 3), which confirmed the patentability of claims 1–11 (Ex. 1003, 1:17).

C. The ’504 Patent

The ’504 patent, titled “CONTROLLING DEVICE WITH DUAL-MODE, TOUCH-SENSITIVE DISPLAY,” issued October 26, 2010, from U.S. Patent Application No. 12/797,686, filed June 10, 2010 (“the ’686

application”). Ex. 1001, codes (21), (22), (45), (54). The ’686 application is a continuation of U.S. Patent Application 12/103,895, filed on April 16, 2008 (issued as U.S. Patent No. 7,782,309 (“the ’309 patent”)), which is a continuation of U.S. Patent Application No. 11/290,358, filed on November 30, 2005 (issued as U.S. Patent No. 7,432,916). *Id.* at code (63). The ’504 patent also claims the benefit of U.S. Provisional Patent Application No. 60/634,680, filed on December 9, 2004. *Id.* at code (60).

The ’504 patent describes a universal controlling device having a dual-mode, touch-sensitive display. *Id.* at 1:16–18, 2:12–15.

Figure 2 of the ’504 patent is reproduced below.

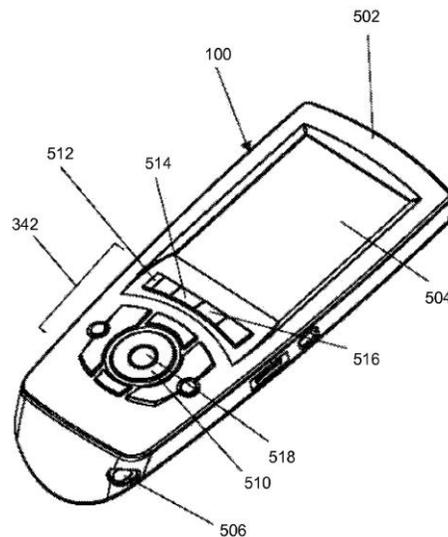


FIGURE 2

Figure 2 depicts an exemplary universal controlling device of the ’504 patent. *Id.* at 2:39–41.

As shown in Figure 2, universal controlling device 100 comprises dual-mode touch-sensitive display 504 and hard keys (or mechanical buttons) 342. *Id.* at 4:41–46, 4:57–60. In an embodiment, mechanical buttons 324 include pointer mode activation button 512, which is used to

toggle universal controlling device 100 between a first operational mode and a second operational mode, also called the pointer control mode. *Id.* at 5:38–42. According to the '504 patent, in the first operational mode, universal controlling device 100 is used to command conventional operational functions of home appliances. *Id.* at 5:17–19. In the second operational mode, universal controlling device 100 accepts input from a user to “control[] a cursor or pointer on a larger, second device, such as a personal computer, television, or the like.” *Id.* at 2:54–58.

Figure 3 of the '504 patent is reproduced below.

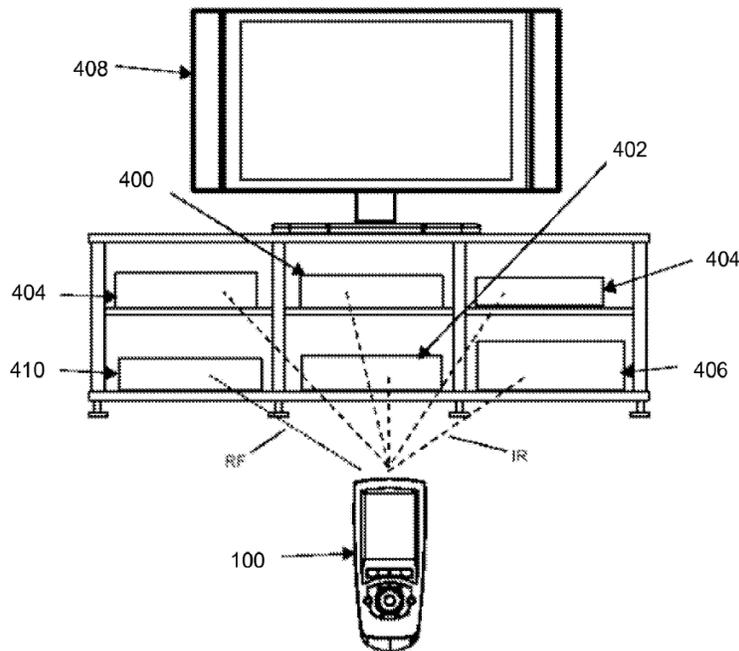


FIGURE 3

Figure 3 illustrates an exemplary system environment in which the exemplary universal controlling device of Figure 2 may be utilized. *Id.* at 2:42–44.

As depicted in Figure 3, universal controlling device 100 can be used to command functional operations of various appliances typically found in a home entertainment center, such as VCRs 400, DVD and CD players 402, cable set-top boxes and satellite receivers 404, AV receivers 406, television 408, and home theater personal computer (“HTPC”) 410. *Id.* at 4:14–25. The ’504 patent describes that HTPC 410 is typically a PC that is set up at the home entertainment center and is used for home entertainment functions, such as playing back music and video files, playing DVDs, and viewing digital photos. *Id.* at 4:25–29.

The ’504 patent further describes that, in the first operational mode, universal controlling device 100 may be used to select a specific media playback device, such as DVD player 402, as the input to AV receiver 406, resulting in the display of the DVD output on TV 408. *Id.* at 5:17–23. In addition, the operation of DVD player 402, AV receiver 406, TV 408, etc., may be controlled by using soft buttons displayed on display 504, as well as mechanical buttons 342, of universal controlling device 100. *Id.* at 5:23–26. For example, when operating in the first operational mode, the application software of universal controlling device 100 presents on display 504 a graphical user interface comprised of icons to control one or more of a plurality of audio-visual equipment (target devices), including a TV, VCR, DVD, satellite box, AV receiver, and a HTPC. *Id.* at 5:8–14. The ’504 patent describes that when the user activates a mechanical button or soft button, a command code specific to an operational function on a specific target device is sent to the target device. *Id.* at 5:30–34.

According to the ’504 patent, in the second operational mode, i.e., the pointer control mode, the touch-sensitive digitizing sub-system on universal

controlling device 100 is used as a “mousing (pointer control) input device” for HTPC 410. *Id.* at 5:35–38.

Figure 4 of the '504 patent is reproduced below.

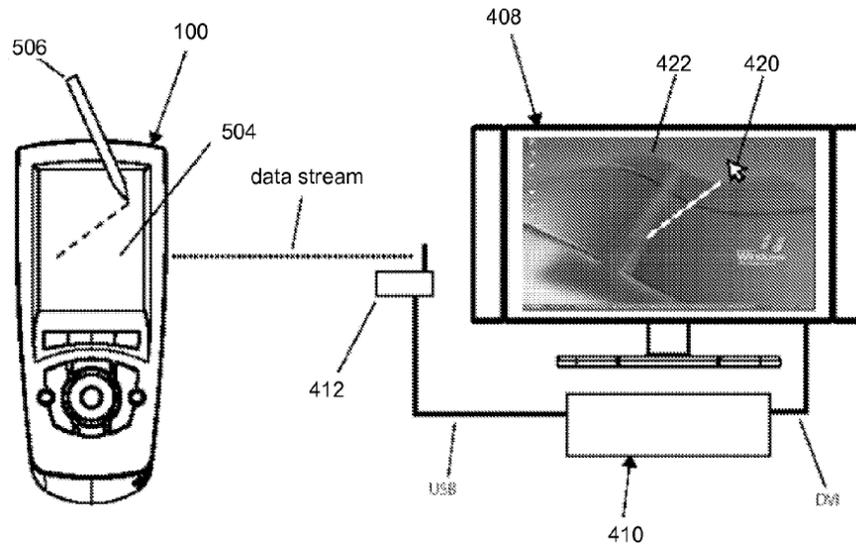


FIGURE 4

Figure 4 illustrates an exemplary flow of data within the exemplary system environment of Figure 3. *Id.* at 2:45–46. As depicted in Figure 4, communications with HTPC 410 may be made by means of USB RF transceiver and converter 412, which receives and converts a data-stream transmitted by universal controlling device 100 into USB messages for HTPC 410. *Id.* at 4:34–40.

The '504 patent describes that when universal controlling device 100 is placed into the pointer control mode, position information output from the touch-sensitive digitizer sub-system is converted into a data-stream, which is sent via a transmitter to receiver and converter 412 connected to a USB port on HTPC 410. *Id.* at 5:48–53. The '504 patent further describes that USB

receiver and converter 412 converts the received data-stream into mouse position messages that are sent to the Windows operating system of HTPC 410 via the USB connection. *Id.* at 5:53–56. According to the ’504 patent, HTPC 410 may then use the data provided by the touch-sensitive digitizing sub-system of universal controlling device 100 in the same way as data received from a USB mouse to control the movement of a displayed pointer. *Id.* at 5:56–60. Referencing Figure 4, the ’504 patent describes that, as illustrated in Figure 4, when stylus 506 is moved across dual-mode display 504, displayed pointer 420 is moved in a corresponding direction on HTPC desktop 422 displayed on TV 408. *Id.* at 5:60–63. The ’504 patent refers to HTPC desktop 422 as “HTPC GUI [graphical user interface] desktop 422.” *Id.* at 5:63–6:2.

D. Illustrative Claim

Claim 1 is illustrative of the challenged claims and is reproduced below with bracketing used by Petitioner.

1. A method for using a universal controlling device comprised of a touch-sensitive surface to command functional operations of one or more appliances located remotely from the controlling device, comprising:

[1.1] accepting via the touch-sensitive surface of the universal controlling device a first input type indicative of a static touch made upon the touch-sensitive surface;

[1.2] causing the universal controlling device to transmit first data used to command at least a first functional operation of the one or more appliances, the first data being representative of the static touch made upon the touch-sensitive surface;

[1.3] accepting via the touch-sensitive surface of the universal controlling device a second input type indicative of a moving touch made across the touch-sensitive surface;

[1.4] causing the universal controlling device to transmit second data used to command at least a second functional operation of the one or more appliances, the second data being representative of the moving touch made across the touch-sensitive surface; and

[1.5] causing the universal controlling device to distinguish the first input type received via the touch-sensitive surface from the second input type received via the touch-sensitive surface.

Ex. 1001, 7:6–29.

E. Evidence

1. Applied References

Petitioner relies upon the following references in its challenges to patentability.

Reference	Date	Designation	Exhibit No.
U.S. Patent No. 6,407,779 B1	Issued June 18, 2002	Herz	1006
European Patent Application Publication No. 0536554 A1	Published Apr. 14, 1993	Zetts	1007
U.S. Patent No. 6,025,841	Issued Feb. 15, 2000	Finkelstein ¹	1008

2. Testimonial Evidence

Petitioner relies on two Declarations from Nathaniel Polish, Ph.D. in support of its Petition and Reply. Ex. 1004 (“Polish Declaration”); Ex. 1024 (“Polish Reply Declaration”). Patent Owner cross-examined Dr. Polish by deposition. Ex. 2011 (“Polish Dep.”).

¹ For clarity and ease of reference, we only list the first named inventor.

In support of its Patent Owner Response, Patent Owner relies on the Declaration of Eric J. Gould Bear. Ex. 2005 (“Bear Declaration”). Petitioner cross-examined Mr. Bear by deposition. Ex. 1028 (“Bear Dep.”).

F. Instituted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 12):

Claims Challenged	35 U.S.C. §	References/Basis
1	103(a) ²	Herz, Zetts
5	103(a)	Herz, Zetts, Finkelstein

We instituted an *inter partes* review of all challenged claims on all grounds presented in the Petition. Inst. Dec. 41–42.

III. ANALYSIS

A. Relevant Principles of Law

To prevail in challenging Patent Owner’s claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103 effective March 16, 2013. Because the ’504 patent has an effective filing date prior to the effective date of the applicable AIA amendment, we refer to the pre-AIA version of § 103.

each claim’’)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under 35 U.S.C. § 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 the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness’’)); *see Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1366–67 (Fed. Cir. 2012) (holding that “some kind of motivation must be shown from some source, so that the [trier of fact] can understand why a person of ordinary skill would have thought of either combining two or more references or modifying one to achieve the patented [invention]’’)).

³ The parties do not address secondary considerations, which therefore do not constitute part of our analysis.

Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze Petitioner’s asserted grounds based on obviousness with the principles identified above in mind.

B. Level of Ordinary Skill in the Art and Petitioner’s Challenge to Patent Owner’s Declarant Testimony

We begin our analysis by addressing the level of ordinary skill in the art. Supported by the testimony of Dr. Polish, Petitioner proposes that a person of ordinary skill in the art “would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related subject, and two to three years of work experience in software programming.” Pet. 11 (citing Ex. 1004 ¶¶ 19–20). According to Petitioner, “[l]ess experience can be remedied with additional education (e.g., a master’s degree), and likewise, less education can be remedied with additional work experience (e.g., 5–6 years).” *Id.* (citing Ex. 1004 ¶¶ 19–20).

Patent Owner proposes instead that a person of ordinary skill in the art would have had “(i) a bachelor’s degree that involved coursework in at least user interface design and computer programming, and (ii) at least one year of demonstrated real-world work experience in the field of computer user interface design.” PO Resp. 8 (citing Ex. 2005 ¶ 52). According to Patent Owner, “[a]dditional education might substitute for some of the experience, and substantial experience, such as expertise in and appreciation of human factors in computing systems sufficient to draft human-computer interaction

specifications, might substitute for some of the educational background.” *Id.* (citing Ex. 2005 ¶ 52).

We adopt Petitioner’s articulation. Although Patent Owner asserts that Petitioner’s proposed definition is overly broad because it omits critical skills, such as human factors considerations (PO Resp. 8–9), Patent Owner’s declarant, Mr. Bear, states that he performed his analysis from both points of view of a person of ordinary skill in the art, as defined by Petitioner and Patent Owner, and the differences between them did not affect his overall conclusions (Ex. 2005 ¶ 56). Likewise, our analysis and conclusions in this Final Written Decision would be the same regardless of whether Petitioner’s or Patent Owner’s definition of the level of ordinary skill in the art is adopted.

Nonetheless, Petitioner asserts that a person of ordinary skill in the art under Patent Owner’s proposed definition would not understand “much (if any) of the programing necessary to implement the techniques of the ’504 patent.” Pet. Reply 6. Petitioner argues that we should assign little weight to Mr. Bear’s testimony because his analysis is performed from “an unsuitable perspective.” *Id.* at 7. Patent Owner counters that Mr. Bear’s testimony should be afforded substantial weight because Mr. Bear is qualified under both parties’ proposed definitions of a person of ordinary skill in the art. PO Sur-reply 24.

We are not persuaded by Petitioner’s argument. First, as discussed above, Mr. Bear states that he performed his analysis from *both* points of view of a person of ordinary skill in the art, as defined by Petitioner and Patent Owner. *See* Ex. 2005 ¶ 56. Thus, we disagree with Petitioner’s argument that Mr. Bear’s analysis is performed from “an unsuitable

perspective.” Second, to the extent the qualifications of Mr. Bear have been called into question (*see* Tr. 33:2–3 (Petitioner’s counsel asserting that Mr. Bear is “unqualified”)), we find that Mr. Bear qualifies as a person of at least ordinary skill in the art under Petitioner’s definition, which states that “less education can be remedied with additional work experience (e.g., 5–6 years).” Pet. 11 (citing Ex. 1004 ¶¶ 19–20). As stated in the Bear Declaration, Mr. Bear’s work experience includes at least 9 years of computer software programming using a variety of coding languages, such as BASIC, Pascal, C, C++, and 68000 Assembly Language. *See* Ex. 2005 ¶¶ 6–8. Thus, Mr. Bear is qualified to testify from the perspective of a person of ordinary skill in the art under Petitioner’s definition of a person of ordinary skill in the art, and we give Mr. Bear’s testimony due weight.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining

the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

In the Institution Decision, we preliminarily construed two claim terms recited in claim 1 as follows.

Term	Construction
“second input type indicative of a moving touch made across the touch-sensitive surface”	“second input type indicative of continuous contact from a first location to a second location on the touch sensitive surface” (Inst. Dec. 20–21)
“second data being representative of the moving touch made across the touch-sensitive surface”	“second data being representative of the continuous contact from the first location to the second location on the touch sensitive surface” (Inst. Dec. 21–24)

The parties agree with our preliminary construction of “second input type indicative of a moving touch made across the touch-sensitive surface.” Pet. 14–15; PO Resp. 14–15. Upon considering the complete record, we discern no reason to deviate from our preliminary construction and, therefore, adopt the construction as set forth above for this Final Written Decision.

As for the construction of the term “second data being representative of the moving touch made across the touch-sensitive surface,” the parties nominally agree with our preliminary construction of the term as set forth above. PO Resp. 15; Pet. Reply 3, 5; PO Sur-reply 1. Petitioner argues, however, the construction should not be further limited to require streaming of data, indication of the path from the first location to the second location,

or transmission of data during the “second input” recited in claim 1. Pet. Reply 3–5. Patent Owner denies that it seeks such limiting constructions but nonetheless argues that “data that indicates nothing more than the location where a user terminates their dragging gesture on a touch screen display **cannot** represent continuous contact from a first location to a second location on a touch-sensitive surface.” PO Sur-reply 1. Although the parties’ dispute raises an issue of claim construction, the dispute is closely related to the issue of whether Herz teaches the limitation “causing the universal controlling device to transmit second data used to command at least a second functional operation of the one or more appliances, the second data being representative of the moving touch made across the touch-sensitive surface” recited in claim 1. *See* PO Resp. 22–27; Pet. Reply 7–13; PO Sur-reply 1–6. Thus, for efficiency and completeness, we address this issue in the context of the patentability discussion below, Section III.E.2.d. As discussed below, we discern no reason to deviate from our preliminary construction and, therefore, adopt the construction as set forth above for this Final Written Decision.

Apart from the two terms discussed above, no other claim terms need to be construed expressly for purposes of this Final Written Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that only terms that are in controversy need to be construed, and “only to the extent necessary to resolve the controversy”); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

D. Scope and Content of the Prior Art

1. Overview of Herz (Ex. 1006)

Herz describes a universal remote control system (Ex. 1006, Abstr.) “for remotely controlling various electronic devices such as television and audio visual (‘AV’) systems using a single remote control” (*id.* at 1:6–9). The remotely controlled AV devices include “videocassette recorder (‘VCR’), stereo system, and digital versatile disc (‘DVD’) components, etc.” *Id.* at 2:62–65.

Figure 5 of Herz is reproduced below.

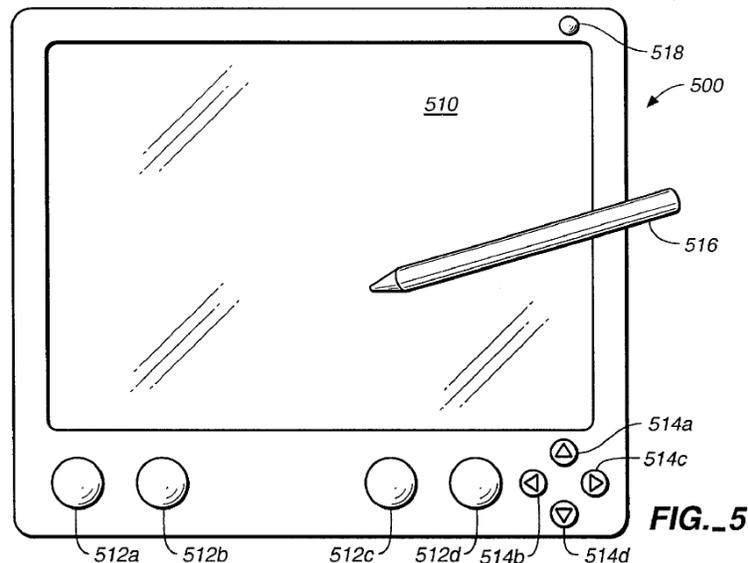


Figure 5 shows an exemplary remote control of Herz. *Id.* at 2:34–35.

As depicted in Figure 5, remote control 500 comprises display screen 510 for interfacing with a user, stylus 516 for writing on display screen 510, and buttons 512a–d & 514a–d for issuing commands and/or entering data into remote control 500. *Id.* at 4:49–54. In an embodiment, display screen 510 is connected to a handwriting recognition mechanism that allows the user to issue commands and/or enter data to remote control 500

by writing onto display screen 510. *Id.* at 4:59–64. The display screen may include touch screen display with pressure sensing ability for sensing user inputs on the screen. *Id.* at 5:7–13.

In another embodiment, Herz describes a soft graphical user interface (“Soft GUI”) that displays emulated buttons on the display screen of the remote control to emulate the control interface of electronic components or devices connected to the remote control. *Id.* at 9:49–10:2. According to Herz, when an emulated button displayed on the screen is pressed by the user, the remote control translates the user command to the corresponding control function and “sends the corresponding control signals to the specified audio/video device(s).” *Id.* at 10:2–7. For example, Figure 9b of Herz (not reproduced herein) shows the remote control displaying “VCR control buttons (e.g. Play, Forward, Backward, Record, and Pause, etc.) on the remote control display screen.” *Id.* at 10:13–17. The user can then control the displayed VCR functions by pressing the corresponding control buttons. *Id.* at 10:17–20. For instance, the user may choose the “Play” function by pressing the corresponding button on the display screen with a stylus, which causes the remote control to send the corresponding control signal for activating the Play function of the VCR. *Id.* at 10:20–25.

In yet another embodiment, the remote control of Herz provides expanded control functions for a television set. *Id.* at 10:60–13:21. In a specific example of this embodiment, Herz describes the remote control controlling various aspects of a PIP (picture-in-picture) window displayed on a television set. *Id.* at 10:65–12:30. Herz describes that “instead of transmitting specific predefined commands . . . from the remote control to the television set,” the remote control can directly control the size and

location of a PIP window displayed on a television by sending corresponding control signals. *Id.* at 10:65–11:6, 11:35–12:3.

Figure 10c of Herz is reproduced below.

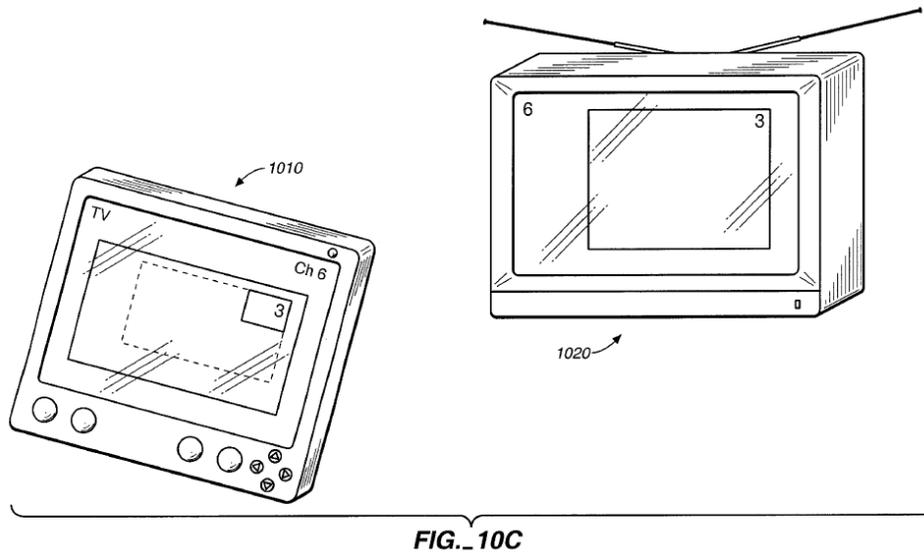


Figure 10c shows remote control 1010 coupled to television set 1020 (*id.* at 11:11–15) to allow users control the size of the PIP window displayed on the television set from the remote control (*id.* at 11:44–54).

In this example, the user is able to adjust the size of the PIP window displayed on the television set by resizing the PIP window on the simulated television screen displayed on the remote control. *Id.* at 11:44–49. As shown in Figure 10c, when the user adjusts the size of the PIP window on the simulated television screen on remote control 1010, the corresponding PIP window on the television set 1020 is resized accordingly. *Id.* at 11:49–52. In an alternative embodiment, the user can resize the PIP window “on the on-screen display on the television set 1020” by using the remote control. *Id.* at 11:49–54.

In another example, which is illustrated in Figure 10d (not reproduced herein), the user is able to move the location of the PIP window on the

television screen by dragging the emulated PIP window on remote control 1010, or in an alternative embodiment, by dragging the PIP window “on the on-screen display on the television set 1020.” *Id.* at 11:55–60. According to Herz, in response to the command to reposition the PIP window, the remote control issues the corresponding repositioning control signals to the television set by transmitting the new location and/or size of the PIP window as entered by the user. *Id.* at 11:64–12:1.

2. Overview of Zetts (Ex. 1007)

Zetts is directed to a method and apparatus for “efficiently distinguishing between different types of input signals simulated by a pointing device coupled to a multi-tasking computer system.” Ex. 1007, code (57). Specifically, Zetts describes “a touch input device (e.g., a touch workpad) for a data processing system.” *Id.* at 2:28.

Figure 1 of Zetts is reproduced below.

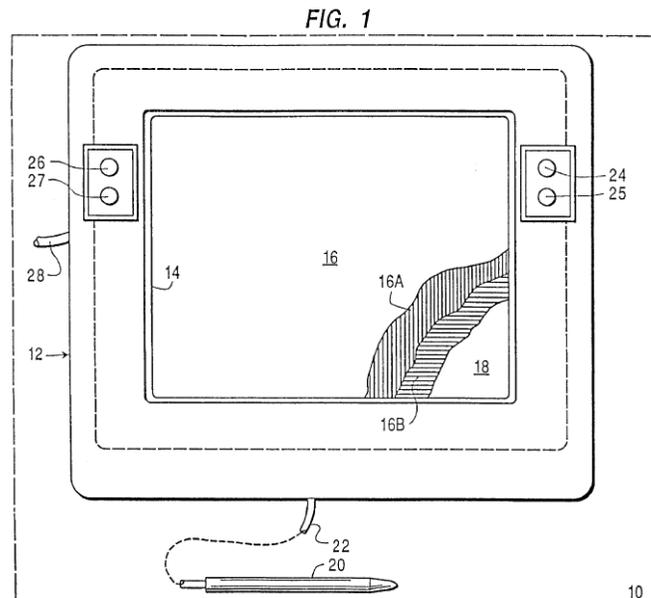


Figure 1 shows the front view of a “touch workpad” of Zetts used for the detection of finger touch and stylus position. *Id.* at 3:40–42.

As described in Figure 1, Zetts’s touch workpad comprises liquid crystal display (LCD) 18 and stylus 20 connected to the touch workpad via cable 22. *Id.* at 3:55–58, 4:7. Zetts further describes that, in the touch input device (i.e., the touch workpad), “input signals generated from a pointing device, such as a stylus or finger, can be categorized either as a mouse input signal or as a gesture or handwriting input signal.” *Id.* at 2:29–31. Zetts describes that “[w]here such input signals are intended to emulate the behavior of a mouse and represent commands, such as mouse button down and mouse button up, the stylus or finger is respectively touched down and lifted off the surface” (*id.* at 2:31–33) but “[w]here the input signal is part of a gesture, a series of such input signals resembling a geometric figure, such as a circle, a right-hand or a left-hand arrow, are indicative of an action to be taken by the computer system” (*id.* at 2:35–37).

According to Zetts, “[o]ne method of differentiating between the types of input signals is by timing.” *Id.* at 2:42. Zetts describes that

If the user, after initiating contact between a pointing device and the touch sensor, moves the pointing device to a desired position and stops motion for a *predetermined time* period without losing contact between the device and the touch sensor (hereinafter referred to as “lift-off”), the operating system will recognize an input signal at the desired position as a mouse command. For example, if the user stops moving the pointing device at a given position for 200 milliseconds, a mouse command at the given position is recognized.

Id. at 2:42–47 (emphasis added). Zetts further describes that

If, on the other hand, the user does not stop at any given position for the specified time delay period and instead lifts off the touch

sensor, the input signals are selected as candidates for character or gesture recognition instead of mouse commands.

Id. at 2:47–50.

E. Obviousness over Herz and Zetts

In this asserted ground of obviousness, Petitioner contends that claim 1 is unpatentable under § 103(a) over the combination of Herz and Zetts. Pet. 17–48.

1. Proposed Combination of Herz and Zetts; Reason to Combine

Petitioner contends that Herz and Zetts are analogous prior art for the '504 patent because both references are in the same field of endeavor as the '504 patent—electronic devices (e.g., remote control) with a touch screen display. Pet. 17, 19–20. In describing its proposed combination of Herz and Zetts, Petitioner characterizes Zetts as disclosing the same type of touch screen display device as Herz—i.e., both of Zetts's and Herz's touch screen displays are implemented with a liquid crystal display (LCD) having a pressure sensitive surface, support a GUI, and can be used with stylus or finger. *Id.* at 22 (citing Ex. 1006, 3:66–4:31, 4:49–64, 5:7–13, 9:48–10:59, Fig. 5; Ex. 1007, 2:15–40, 3:55–4:33, 4:55–5:12, Fig. 1). Petitioner further contends that Zetts describes the same input types as Herz—i.e., icons or buttons for commands, and motions or gestures made by the user on the screen. *Id.* at 23 (citing Ex. 1007, 2:15–40, 3:15–33, 5:4–6:15, Figs. 5, 8A–B, 9A–B, 10A–D, 11A–C, 12A–B).

In its proposed combination of Herz with Zetts, Petitioner relies on Herz as teaching a universal remote control system or remote control (the claimed “universal controlling device”), a pressure sensitive touch screen

display (the claimed “touch-sensitive surface”), consumer electronic devices such as a television set (the claimed “one or more appliances located remotely from the controlling device”), and their general functions and operations. Pet. 25–29. According to Petitioner, Herz discloses “a universal remote control system having a touch screen display through which a user can interact to provide input in several ways—such as, by pressing buttons or by making motions or gestures on the screen.” *Id.* at 22 (citing Ex. 1006, Title (code (54)), Abstr., Figs. 2, 3, 5, 8a–b, 9a–b, 10a–d, 11a–c, 12a–b).

Petitioner also relies on Herz for its teaching of “the difference between the various input types and provides different display interfaces to receive them.” Pet. 22 (citing Ex. 1006, 5:7–13, 10:8–25, 11:12–12:3, Figs. 9a–b, 10a–d). For example, Petitioner asserts that Herz teaches the claimed “first input type indicative of a static touch made upon the touch-sensitive surface” because Herz describes that “its universal remote control displays a graphical user interface (GUI) that includes icons or buttons that emulate or correspond to controls or commands for AV devices, such as, for example, ‘VCR control buttons (e.g. Play, Forward, Backward, Record, and Pause, etc.) . . . as shown in FIG. 9b.’” *Id.* at 29 (citing Ex. 1006, 1:62–64, 9:48–10:59, Figs. 9a, 9b). Petitioner further contends that Herz teaches or suggests “second input type indicative of continuous contact from a first location to a second location on the touch sensitive surface” because Herz describes “dragging” an emulated PIP (picture-in-picture) window on the remote control to move the PIP window from one location to another location on Herz’s touch screen display. *Id.* at 34–35 (citing Ex. 1006, 4:49–5:30, 6:3–14, 11:57–59, 14:20–24, 17:66–18:4, Figs. 5, 10a–d, 12b). Petitioner also argues that “Herz’s remote control, in order to function as

described, would need to ‘*distinguish the first input type . . . from the second input type*’; otherwise, it would not respond correctly to the user’s different inputs.” *Id.* at 42 (citing Ex. 1006, 5:7–13).

Although Petitioner argues that Herz’s disclosure of “dragging” an emulated PIP window on the remote control teaches or suggests continuous contact from a first location to a second location, Petitioner relies on Zetts for its explicit teaching of continuous contact aspects of motion tracking on the touch-sensitive surface. Pet. 35–36 (citing Ex. 1007, 6:2–7:14).

Similarly, although Petitioner asserts that Herz’s disclosure of different types of input on the touch-sensitive surface suggests “distinguish[ing] the first input type . . . from the second input type,” Petitioner relies on Zetts’s explicit teaching of distinguishing different types of input made on a touch screen display, such as distinguishing between mouse commands from gestures on the touch screen. *Id.* at 42–43 (citing Ex. 1007, 2:28–33, 2:41–42; 5:4–52, 6:2–13).

Supported by testimony of its declarant, Dr. Polish, Petitioner asserts that a person of ordinary skill in art would have been motivated to combine Herz and Zetts because Herz teaches that the input made on its display may be processed by a “software program” and Zetts teaches how to implement such software program, for example, as an improved “Advanced User Interface (AUI),” so that it may “efficiently distinguish[] between different types of input signals.” Pet. 24 (alteration by Petitioner) (citing Ex. 1006, 11:8–11, 9:11–19, 13:12–21; Ex. 1007, Abstr., 5:2–6, 5:24–27; Ex. 1004 ¶ 94). Pointing to Zetts’s disclosures on methods and apparatus “for efficiently distinguishing between different types of input signals” for a touch screen device, Petitioner argues that a person of ordinary skill in art

implementing the remote control touch screen of Herz would have been motivated to reduce the system overhead associated with distinguishing between various input types, such as GUI button command and gesture input, by employing the techniques of Zetts to reduce processor time spent on input handling. *Id.* at 23–24 (citing Ex. 1007, Title, Abstr., 2:1–3, 2:51–54, 3:3–14, 5:5–6, 7:31–42; Ex. 1004 ¶¶ 91–97).

Petitioner asserts that a person of ordinary skill in art would have had a reasonable expectation of success in incorporating Zetts’s teachings into Herz because Zetts teaches the techniques and mechanics of how the touch screen display of Herz’s remote control would operate. Pet. 37 (citing Ex. 1004, 87–98). Citing the testimony of Dr. Polish, Petitioner further argues that because the modification of a software program was a common and straightforward task to a person of ordinary skill in art at the time of the invention, a person of ordinary skill in art would have had a reasonable expectation of success in incorporating Zetts’s teachings into Herz for yielding a remote control system that is caused to distinguish between different input types made onto a display. *Id.* at 45 (citing Ex. 1004, 131–132).

Patent Owner asserts that a person of ordinary skill in art would not have combined Herz and Zetts to arrive at the claimed invention because (1) Zetts is not analogous art to the claimed invention of the ’504 patent (PO Resp. 31–37), (2) combining Herz and Zetts would have been disadvantageous and would have rendered the combined device inoperable (*id.* at 42), and (3) a person of ordinary skill in art would not have had a reasonable expectation of success in combining Herz with Zetts (*id.* at 45–47). We address each of these arguments in turn.

a. Analogous Art

In an obviousness analysis, “[t]wo separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is *reasonably pertinent* to the particular problem with which the inventor is involved.” *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011) (emphasis added) (quoting *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004)).

Turning to the first test, to determine the applicable field of endeavor, the factfinder must consider “explanations of the invention’s subject matter in the patent application, including the embodiments, function, and structure of the claimed invention.” *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1380 (Fed. Cir. 2019) (quoting *Bigio*, 381 F.3d at 1325). As discussed above, Petitioner asserts that Zetts is analogous prior art for the ’504 patent because Zetts is in the same field of endeavor as the ’504 patent—electronic devices (e.g., remote control) with a touch screen display. Pet. 17, 19–20 (citing Ex. 1004 ¶¶ 69, 80).

In its Patent Owner Response, Patent Owner asserts that the field of endeavor of the ’504 patent is a remote control with a touch screen display and that Zetts is not analogous art because Zetts’s field of endeavor is “reducing system overhead on a personal computer.” PO Resp. 33–34. Patent Owner further argues that “Zetts does not disclose a remote control of any kind.” *Id.* at 34. In the Reply, Petitioner asserts that Patent Owner defines the ’504 patent’s field of endeavor too narrowly. Pet. Reply 24. Citing the statement in the ’504 patent that the patent “relates generally to controlling devices,” Petitioner argues that the patent’s field of endeavor

must include controlling devices more generally. *Id.* (citing Ex. 1001, 1:16–18). Citing the testimony of Dr. Polish, Petitioner asserts that Zetts is analogous art because it is “squarely within the field of ‘*controlling devices . . . with a touch screen display.*’” *Id.* at 25 (emphasis added) (citing Ex. 1004 ¶ 80).

We agree with Petitioner’s argument and disagree with Patent Owner’s argument. Considering “explanations of the invention’s subject matter in the patent application, including the embodiments, function, and structure of the claimed invention,” *Airbus*, 941 F.3d at 1380, we first note that the title of the ’504 patent is “CONTROLLING DEVICE WITH DUAL-MODE, TOUCH-SENSITIVE DISPLAY.” Ex. 1001, code (54). As Petitioner argues, the BACKGROUND section of the ’504 patent also states that it “relates *generally to controlling devices* and, more particularly, to a *controlling device having a dual-mode, touch-sensitive display.*” *Id.* at 1:16–18 (emphases added). In addition, in the DETAILED DESCRIPTION section, the ’504 patent describes an embodiment of “a controlling device 100 having a dual-mode, touch-sensitive face panel.” *Id.* at 2:50–51. In view of these broad statements in the ’504 patent, we agree with Petitioner that the field of endeavor of the ’504 patent is a “controlling device with a touch-sensitive display,” notwithstanding the patent’s disclosure of narrower embodiments specific to universal remote control devices. *See In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979) (determining the field of endeavor based on an express disclosure in the Background of the Invention section of the application’s specification).

Even if we were to add the “dual-mode” requirement described in the ’504 patent to further narrow the field of endeavor of the ’504 patent to be a

“controlling device having a dual-mode, touch-sensitive display,” we agree with Petitioner that Zetts is from the same field of endeavor as the ’504 patent because Zetts describes a controlling device with a touch-sensitive display having at least two different modes of input operation, e.g., distinguishing between mouse button commands from gestures on the touch screen. *See* Pet. 20–21 (asserting, in the context of Petitioner’s argument that Zetts is analogous art, that “Zetts recognizes that with a touch screen display, different types of input signals can be used,” such as a “mouse input” type for input made through buttons or icons on the display and “gestures” input type when a finger or stylus touches the touch-sensitive display for a predetermined period of time) (citing Ex. 1007, Abstr., 2:15–42, 5:9–17, 5:24–27; Ex. 1004 ¶¶ 32–36, 80–82).

Turning to the second test, Patent Owner contends that “Zetts is not reasonably pertinent to the problem of the ’504 patent because Zetts and the ’504 patent have different purposes.” PO Resp. 36. According to Patent Owner, the ’504 patent is concerned with “creating a universal remote control or a universal controlling device with a dual-mode touch-sensitive display,” whereas Zetts is concerned with “reducing system overhead associated with a delay timer in an operating system *of a personal computer* by improving the software installed *on the personal computer*.” *Id.* at 36–37. Patent Owner asserts that Zetts is not reasonably pertinent to the problem of the ’504 patent because “Zetts . . . has nothing to do with universal remote controls, remote controls, or software for remote controls.” PO Sur-reply 14. In its Reply, Petitioner argues that, even accepting *arguendo* Patent Owner’s articulation of the problem of the ’504 patent, Zetts is reasonably pertinent to the problem because Zetts describes

implementation details for touch-sensitive display devices that receive inputs corresponding to mouse commands and gestures. Pet. Reply 25. According to Petitioner, because Zetts deals with touch input devices that can accept multiple modes of touch input, it logically would have commended itself to the '504 patent's inventor dealing with the alleged problem of creating a remote control with a "dual-mode touch-sensitive display." *Id.* at 25–26; *see also* Pet. 20–21 (arguing that "Zetts recognizes that with a touch screen display, different types of input signals can be used," such as a "mouse input" type for input made through buttons or icons on the display and "gestures" input type when a finger or stylus touches the touch-sensitive display for a predetermined period of time) (citing Ex. 1007, Abstr., 2:15–42, 5:9-17, 5:24-27; Ex. 1004 ¶¶ 32–36, 80–82).

"A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *Klein*, 647 F.3d at 1348 (quoting *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992)). A reference need not be reasonably pertinent to every problem facing a field to be analogous prior art, but rather need only be "reasonably pertinent to *one or more* of the particular problems to which the claimed inventions relate." *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1361 (Fed. Cir. 2020) (emphasis added). We agree with Petitioner that Zetts is reasonably pertinent to at least one particular problem with which the inventor is involved, i.e., providing a controlling device with a dual-mode touch-sensitive display. Although the '504 patent also deals with creating a universal remote control that may have some differences from the touchpad

controlling device of Zetts, we agree with Petitioner that Zetts logically would have commended itself to the '504 patent's inventor dealing with the particular problem of creating a controlling device with a dual-mode touch-sensitive display. *See Donner*, 979 F.3d at 1361 (“a reference can be analogous art with respect to a patent even if there are significant differences between the two references”).

In the Patent Owner Sur-reply, Patent Owner asserts that Petitioner's Reply presents improper new arguments addressing the '504 patent's field of endeavor and explaining why Zetts is reasonably pertinent to the problem faced by the inventor of the '504 patent. PO Sur-reply 23–24. Patent Owner argues that these new Reply arguments should be disregarded because they were not included in the Petition. Paper 35, 1. Petitioner asserts that these Reply arguments are proper because they are responsive to Patent Owner's arguments in the Patent Owner Response. Paper 34, 6–7.

As discussed above, Petitioner in the Petition argued that Zetts is analogous prior art for the '504 patent because Zetts is in the same field of endeavor as the '504 patent—electronic devices (e.g., remote control) with a touch screen display. Pet. 17, 19–20 (citing Ex. 1004 ¶¶ 69, 80). In its Reply, Petitioner asserts that Patent Owner in the Patent Owner Response defines the '504 patent's field of endeavor too narrowly to be “universal controlling devices with touch screen displays” and argues that the field of endeavor instead should be defined as “controlling devices . . . with a touch screen display.” Pet. Reply 24–25. Thus, Petitioner's definition of the field of endeavor of the '504 patent remains essentially the same between the Petition and the Reply, and Petitioner's argument in the Reply regarding the

field of endeavor are properly responsive to Patent Owner's arguments in the Patent Owner Response.

Although Petitioner did not discuss the "reasonably pertinent" test in the Petition, Petitioner was not required to do so because the Petition addressed one of the two separate tests to show Herz and Zetts qualify as analogous art. Thus, Petitioner's arguments in the Reply regarding the "reasonably pertinent" test are properly responsive to Patent Owner's arguments in the Patent Owner Response. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1078–80 (Fed. Cir. 2015) (explaining that the Board may rely on new evidence submitted with a reply because that evidence was responsive to the arguments in patent owner's response).

We have considered the rest of Patent Owner's arguments in the Patent Owner Response and Patent Owner's Sur-reply on the analogous art issue, but find them unpersuasive. For example, Patent Owner in its Sur-reply contends that "Petitioner does not dispute that Zetts's field of endeavor . . . is reducing system overhead." PO Sur-reply 12 (citing Pet. Reply 24–25). Contrary to Patent Owner's contention, as discussed above, Petitioner argues that Zetts is analogous art because it is "squarely within the field of 'controlling devices . . . with a touch screen display.'" Pet. Reply 25 (citing Ex. 1004 ¶ 80).

Patent Owner also asserts that Petitioner's Reply does not support with any evidence the argument that Zetts "deals with touch input devices that can accept multiple modes of touch input." PO Sur-reply 14. We disagree with Patent Owner's argument because, as discussed above, Petitioner discussed, with citations to supporting evidence, this aspect of Zetts in the Petition in the context of its argument that Zetts is analogous art.

See Pet. 20–21 (arguing that “Zetts recognizes that with a touch screen display, different types of input signals can be used,” such as a “mouse input” type for input made through buttons or icons on the display and “gestures” input type when a finger or stylus touches the touch-sensitive display for a predetermined period of time) (citing Ex. 1007, Abstr., 2:15–42, 5:9-17, 5:24-27; Ex. 1004 ¶¶ 32–36, 80–82).

For the foregoing reasons and based on the complete record, we determine that Petitioner has demonstrated sufficiently that Zetts is analogous art to the ’504 patent.

b. Disadvantages and Inoperability

Next, Patent Owner contends, citing the testimony of its declarant, Mr. Bear, that a person of ordinary skill in the art (POSITA) would not have been motivated to combine Herz and Zetts because

- (i) implementing Zetts’ software on Herz’s remote control would not have improved a similar device in the same way;
- (ii) a POSITA would have known that implementing Zetts’ software on Herz’s remote control would have undesirably increased system overhead on Herz’s remote; and
- (iii) a POSITA would have known that implementing Zetts’ software on Herz’s remote control would have rendered Herz’s remote control inoperable.

PO Resp. 42 (citing Ex. 2005 ¶¶ 119–127) (emphasis omitted). Citing the testimony of Dr. Polish, Petitioner disputes Patent Owner’s contentions. Pet. Reply 16–20 (citing Ex. 1024 ¶¶ 43–48). In particular, Petitioner argues that Patent Owner’s arguments improperly relies on bodily incorporation of references. *Id.* at 17–19.

We agree with Petitioner’s argument and disagree with Patent Owner’s argument because Patent Owner improperly relies upon the bodily

incorporation of one reference into another, i.e., implementing Zetts’s software on Herz’s remote control hardware, rather than maintaining focus on the teachings of the references. “[T]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

In the Sur-reply, Patent Owner asserts that Petitioner’s Reply presents improper new arguments addressing why a person of ordinary skill in the art would have been motivated to combine Herz and Zetts. PO Sur-reply 23 (citing Pet. Reply 16–20). Petitioner addresses each of its arguments in the Reply identified by Patent Owner and argues that each is properly responsive to Patent Owner’s arguments raised in the Patent Owner Response. Paper 34, 5–6. Upon considering the full record, we agree with Petitioner.

We have considered the rest of the parties’ arguments and the competing testimony of their respective declarants (*see* PO Resp. 41–45; PO Sur-reply 16–18; Pet. Reply 16–20) and, based on the complete record, determine that Patent Owner’s arguments do not undermine Petitioner’s showing.

c. Reasonable Expectation of Success

Lastly, Patent Owner argues that Petitioner has not shown sufficiently that a person of ordinary skill in the art would have had a reasonable expectation of success in combining Herz with Zetts. PO Resp. 45. Patent

Owner asserts that, contrary to Petitioner’s contention, modifying personal computer software of Zetts to run on a completely different type of hardware of Herz’s remote control would not have been a “common and straightforward task,” but instead would have been complex, expensive, time-consuming, and would have had no guarantee of success. *Id.* at 46–47 (citing Ex. 2005 ¶¶ 128–131). In its Reply, Petitioner argues that Patent Owner’s arguments are “incorrectly premised on bodily incorporation of Zetts with Herz.” Pet. Reply 20.

We agree with Petitioner’s argument and disagree with Patent Owner’s argument because Patent Owner improperly relies upon the bodily incorporation of one reference into another, rather than maintaining focus on the teachings of the references. *See MCM Portfolio*, 812 F.3d at 1294. We have considered the rest of the parties’ arguments and the competing testimony of their respective declarant (*see* PO Resp. 45–47; Pet. Reply 20–21) and, based on the complete record, determine that Patent Owner’s arguments do not undermine Petitioner’s showing.

For the foregoing reasons and based on the complete record, we determine that Petitioner articulates sufficient reason, supported by rational underpinning, for the combination of teachings from Herz and Zetts that it proposes.

*2. Discussion of Independent Claim 1 —
Differences Between the Claimed Subject Matter and the Prior Art*

Petitioner challenges claim 1 as unpatentable under 35 U.S.C. § 103(a) over Herz and Zetts. Pet. 25–48.

a. Preamble

In addressing the recitations of claim 1, Petitioner draws a correspondence between (1) the recited “universal controlling device” and Herz’s universal remote control system or remote control (Pet. 25–26 (citing Ex. 1006, Abstr., 1:6–22, 1:24–26, 2:54–65, 4:1–31, 4:49–64, 5:7–24, 9:48–10:59, 15:7–24, Figs. 1–3, 5)); (2) the recited “touch-sensitive surface” and Herz’s pressure sensitive touch screen display (*id.* at 27 (citing Ex. 1006, 4:1–13, 4:49–64, 5:7–13, 17:53–67, Figs. 2, 3, 5, 11*a*)); and (3) the recited “one or more appliances” and Herz’s AV devices such as a television set and “videocassette recorder (‘VCR’), stereo system, and digital versatile disc (‘DVD’) components, etc.” (*id.* at 27–28 (citing Ex. 1006, 1:6–9, 1:14–16, 2:60–65, 4:17–21, 9:57–62, Figs. 1, 2, 10*a–d*, 11*a*)). Based on these mappings, Petitioner asserts that Herz teaches “[a] method for using a universal controlling device comprised of a touch-sensitive surface to command functional operations of one or more appliances located remotely from the controlling device,” as recited in the preamble of claim 1. *Id.* at 25–29.

Patent Owner does not dispute Herz teaches the preamble of claim 1. *See* PO Resp. 18–47. Based on the complete record and for the reasons explained by Petitioner, we find that Petitioner has demonstrated sufficiently that Herz teaches the preamble⁴ of claim 1.⁵

⁴ Because Petitioner has shown that the recitations in the preamble are satisfied by Herz, we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

⁵ We also find that Patent Owner has waived any argument directed to the preamble of claim 1. *See* Paper 14 (Scheduling Order), 8 (“Patent Owner is

b. Limitations [1.1] and [1.2]

Petitioner identifies the limitation of claim 1 reciting “accepting via the touch-sensitive surface of the universal controlling device a first input type indicative of a static touch made upon the touch-sensitive surface” as limitation [1.1]. Pet. 29. Petitioner asserts that Herz teaches limitation [1.1] because Herz describes that Herz’s universal remote control displays graphical icons or buttons on the touch screen display and that each of the buttons or icons can be actuated by touching or pressing to emulate controls or commands for AV devices, such as, for example, “VCR control buttons (e.g. Play, Forward, Backward, Record, and Pause, etc.) . . . as shown in FIG.9b.” *Id.* (citing Ex. 1006, 1:62–64, 9:48–10:59, 17:66–18:1, Figs. 9a, 9b). Citing the testimony of Dr. Polish, Petitioner contends that a person of ordinary skill in the art would have understood that Herz’s button or icon is actuated by a user pressing or touching the touch-sensitive surface at the location of the desired button with a finger or stylus and holding it still long enough, i.e., “a first input type indicative of a static touch made upon the touch-sensitive surface,” as recited in the claim. *Id.* at 29–30 (citing Ex. 1006, 10:8–39, 17:66–18:1; Ex. 1004, 65–68). Petitioner also asserts such user actuation by touch of a GUI command button teaches “accepting via the touch-sensitive surface of the universal controlling device a first input type” because Herz’s touch screen display senses and processes the command input to translate or convert it to the corresponding function or control signal, such as the corresponding control signals for activating the Play function of the VCR. *Id.* at 30–31 (citing Ex. 1006, 10:2–25).

cautioned that any arguments for patentability not raised in the response may be deemed waived.”).

Petitioner concludes that “Herz’s remote control touch screen display that senses actuation by touch of command buttons displayed on the graphical user interface, and translates same into a corresponding function” teaches “accepting via the touch-sensitive surface of the universal controlling device a first input type indicative of a static touch made upon the touch-sensitive surface,” as recited in claim 1. *Id.* at 31 (citing Ex. 1004, 65–70).

Petitioner identifies as limitation [1.2] the limitation of claim 1 reciting “causing the universal controlling device to transmit first data used to command at least a first functional operation of the one or more appliances, the first data being representative of the static touch made upon the touch-sensitive surface.” Pet. 31. Petitioner asserts that Herz teaches this limitation because when the user presses or touches an emulated command button for controlling a remote AV device on the touch screen display of Herz’s remote control (i.e., the recited “static touch made upon the touch-sensitive surface”), the remote control sends (i.e., “transmit[s]”) the corresponding control signals (the recited “first data being representative of the static touch made upon the touch-sensitive surface”) to the target AV device, e.g., a VCR, to command the emulated control function of the AV device, e.g., “Play” the VCR (the recited “at least a first functional operation of the one or more appliances”). *Id.* at 31–34 (citing Ex. 1006, 3:32–65, 5:21–22, 5:33–6:11, 8:29–32, 9:15–16, 9:48–10:59, 13:49–52, 17:51–18:15, Figs. 1–4, 9a, 9b; Ex. 1004, 70–86).

Patent Owner does not dispute that the disclosures of Herz relied on by Petitioner in the Petition, as outlined above, teach limitations [1.1] and

[1.2].⁶ *See* PO Resp. 18–47. Based on the complete record and for the reasons explained by Petitioner, we find that Petitioner has demonstrated sufficiently that Herz teaches “accepting via the touch-sensitive surface of the universal controlling device a first input type indicative of a static touch made upon the touch-sensitive surface” and “causing the universal controlling device to transmit first data used to command at least a first functional operation of the one or more appliances, the first data being representative of the static touch made upon the touch-sensitive surface,” as recited in claim 1.⁷

c. Limitation [1.3]

Petitioner identifies the limitation of claim 1 reciting “accepting via the touch-sensitive surface of the universal controlling device a second input type indicative of a moving touch made across the touch-sensitive surface” as limitation [1.3]. Pet. 34. As discussed above in Section III.C (Claim Construction), we construe “second input type indicative of a moving touch made across the touch-sensitive surface” as “second input type indicative of continuous contact from a first location to a second location on the touch sensitive surface.”

⁶ Although Patent Owner argues that “Petitioner is precluded from relying on Herz’s OSD Embodiment to show that Herz discloses, teaches, or suggests any of the limitations of Challenged Claim 1” because “Petitioner and its expert did not rely on Herz’s OSD Embodiment in the Petition” (PO Resp. 18), Patent Owner does not dispute that the disclosures of Herz relied upon in the Petition, as outlined above, teach limitations [1.1] and [1.2] (*see* PO Resp. 18–47).

⁷ We also find that Patent Owner has waived any argument directed to these limitations of claim 1. *See* Paper 14, 8.

Petitioner asserts that under this construction, the combination of Herz and Zetts renders claim element [1.3] obvious. Pet. 34. First, Petitioner contends that Herz teaches or suggests “second input type indicative of continuous contact from a first location to a second location on the touch sensitive surface” because Herz describes “dragging” an emulated PIP window on the remote control to move the PIP window from one location to another location on Herz’s touch screen display. *Id.* at 34–35 (citing Ex. 1006, 4:49–5:30, 6:3–14, 11:57–59 (“the *user is able to move the location of [a picture in picture (PIP)] window screen on the television screen by simply dragging the emulated PIP window on the remote control*” (emphasis by Petitioner)), 14:20–24, 17:66–18:4, Figs. 5, 10a–d, 12b). Supported by testimony of Dr. Polish, Petitioner argues that Herz’s use of the term “dragging” teaches or suggests continuous contact from a first location to a second. *Id.* at 35 (citing Ex. 1004, 93).

In addition, Petitioner asserts that Zetts explicitly discloses the continuous contact aspect of the recited “second input type indicative of a moving touch made across the touch-sensitive surface” because Zetts describes recognizing a gesture input on Zetts’s touch pad when the user makes a “touch-down” at a first touch input point on the touch screen and continues to move through other points on the screen in a certain time frame without lifting off the screen. Pet. 36 (citing Ex. 1007, 6:2–7:14). Specifically, Petitioner relies on the following disclosure in Zetts.

A delay timer is reset every nth point to determine the period of stability or cessation of pointing device movement initiated by the user pausing on the touch sensor at 126. . . . In this example, *the user does not pause before pointing device* (e.g., the stylus 20) *is lifted*, and therefore, the stroke is sent to a character recognition unit or gesture recognition unit for processing

Id. (emphases added) (citing Ex. 1007, 6:5–12, Figs. 6–8).

Petitioner argues that by combining Herz’s teaching of “remote control (e.g., implemented with software) that senses and recognizes motions or gestures (e.g., dragging) on its touch screen display” with Zetts’s teaching of “the motions or gestures that correspond to continuous contact from a touch-down point to another point on the screen,” the combination of Herz and Zetts teaches or renders obvious “accepting via the touch-sensitive surface of the universal controlling device a second input type indicative of a moving touch made across the touch-sensitive surface,” as recited in claim 1. Pet. 38.

Patent Owner does not dispute Petitioner’s contentions in the Petition regarding the teachings of Herz and Zetts with respect to limitation [1.3], as outlined above.⁸ *See* PO Resp. 18–47. As discussed above in Section III.E.1, we determine that Zetts is analogous art and that Petitioner has demonstrated sufficiently that a person of ordinary skill in the art would have been motivated to combine Herz and Zetts in the way claimed by claim 1 and had a reasonable expectation of success in doing so.

Accordingly, based on the complete record and for the reasons explained by Petitioner, we find that Petitioner has demonstrated sufficiently that the combination of Herz and Zetts teaches or renders obvious “accepting

⁸ Although Patent Owner argues that “Petitioner is precluded from relying on Herz’s OSD Embodiment to show that Herz discloses, teaches, or suggests any of the limitations of Challenged Claim 1” because “Petitioner and its expert did not rely on Herz’s OSD Embodiment in the Petition” (PO Resp. 18), Patent Owner does not dispute Petitioner’s contentions set forth in the Petition regarding the teachings of Herz and Zetts with respect to limitation [1.3], as outlined above (*see id.* at 18–47).

via the touch-sensitive surface of the universal controlling device a second input type indicative of a moving touch made across the touch-sensitive surface,” as recited in claim 1.

d. Limitation [1.4]

Petitioner identifies as limitation [1.4] the limitation of claim 1 reciting “causing the universal controlling device to transmit second data used to command at least a second functional operation of the one or more appliances, the second data being representative of the moving touch made across the touch-sensitive surface.” Pet. 38. Patent Owner identifies this limitation as the Second Data Limitation. PO Resp. 22. As discussed above in Section III.C, we construe “second data being representative of the moving touch made across the touch-sensitive surface” as “second data being representative of the continuous contact from the first location to the second location on the touch sensitive surface.”

Petitioner asserts that, under this construction, the combination of Herz and Zetts teaches claim element [1.4]. Pet. 38–41. First, as discussed above with respect to claim element [1.3], Petitioner sufficiently shows that by combining Herz’s disclosure of gesture input type on a touch screen display (e.g., dragging) and Zetts’s disclosure of “motions or gestures that correspond to continuous contact from a touch-down point to another point on the screen,” the combination of Herz and Zetts teaches or renders obvious “second input type indicative of continuous contact from a first location to a second location on the touch sensitive surface.” *Id.* at 35–38. Petitioner contends that a person of ordinary skill in the art would have understood that Herz’s touch screen display uses data in order to make the adjustments to what is displayed on the remote control screen. *Id.* at 39 (citing Ex. 1004,

109). Thus, Petitioner argues that “Herz, either alone or in combination with Zetts” teaches “second data being representative of continuous contact from the first location to the second location on the touch sensitive surface” because the television set reflects movement of the PIP (in both direction and distance) made by the user’s gesture on touch screen display: “*the PIP window on the television screen is positioned by the user to a new location when the emulated PIP window on the remote control 1010 is dragged to a different location.*” *Id.* (emphasis by Petitioner) (quoting Ex. 1006, 11:60–63).

Petitioner further contends that Herz teaches “causing the universal controlling device to transmit second data used to command at least a second functional operation of the one or more appliances” because Herz describes, among other examples, that when a PIP window is dragged on the remote control, “[i]n response to the command to reposition the PIP window screen, the remote control issues the corresponding repositioning control signals to the television set by transmitting the new location and/or size of the PIP window as entered by the user.” Pet. 39–40 (emphasis by Petitioner) (quoting Ex. 1006, 11:64–12:1). Citing the testimony of Dr. Polish, Petitioner argues that a person of ordinary skill in the art would have understood that “these repositioning control signals convey or carry, in correspondence with the user’s dragging motion, motion data (‘*second data*’) to the television set (‘*one or more appliances*’) as control parameters to command the operation of the television to make adjustments to what is shown on the screen.” *Id.* at 40 (underlined emphases added) (citing Ex. 1004, 115) (quoting Ex. 1006, 12:11–30 (“the television set should be able to accept the *controlling parameters such as the location and the size*

of the PIP window” (emphasis by Petitioner)), 20:11–25 (“*transmitting said second set of controlling parameters from the remote control to the television; and adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters*” (emphasis by Petitioner)).

In sum, Petitioner’s position presented in the Petition is that the combination of Herz and Zetts teaches “transmit[ting] second data used to command at least a second functional operation of the one or more appliances” because when a PIP window on the remote control is selected by a touch-down on the window and then dragged by continuous contact from the touch-down point to another point on the touch screen, data representative of the continuous contact from the first location to the second location on the touch screen (the claimed “second data”) is transmitted to the television set (the claimed “one or more appliances”) in the form of the “repositioning control signals” issued by the remote control with the “controlling parameters such as the location and the size of the PIP window” for the television set.

Patent Owner contends that Herz does not disclose the remote control transmitting to the television set data representing a “continuous contact from a first location to a second location” because Herz does not transmit a new location and/or size of the PIP window as the user drags the emulated PIP window on the touch screen of the remote control. PO Resp. 24.

According to Patent Owner,

[b]ecause Herz’s remote control transmits the new location and/or adjusted size of the PIP window to the television: (i) *after* the user’s dragging gesture is completed; and (ii) even *after* the remote control analyzes the adjustment and translates the

adjustment to controlling parameters comprising an adjusted size of the PIP window,” the data indicating the new location and/or size of the PIP window (i.e., the alleged “second data”) is not “representative of the continuous contact from the first location to the second location on the touch sensitive surface.”

Id. at 25–26 (citing (Ex. 2005 ¶¶ 82–92). Patent Owner further argues that the alleged “second data” of Herz cannot be the claimed “second data” because “it is independent of (and thus does not indicate) the path that a user’s finger or stylus takes on the touch screen during a dragging gesture.” *Id.* at 26. According to Patent Owner, the data indicating the new location and/or size of the PIP window “at best represents only the static location where the user lifts their finger off the touch screen at the end of the dragging gesture.” *Id.*

In its Reply, Petitioner argues that Herz describes transmission of “repositioning control signals” indicating a new location and/or size of a PIP window (Pet. Reply 7 (citing Pet. 38–41)) and that these “repositioning control signals” teach the recited “second data,” because they are “representative of the continuous contact from the first location to the second location on the touch sensitive surface” (*id.* at 8). According to Petitioner, “[t]he transmitted repositioning control signals represent that the user has selected (using a stylus contact) the PIP window, dragged the stylus across the screen (i.e., continuously contacted the screen with motion), and lifted the stylus, thereby causing the transmission of the repositioning control signals.” *Id.* (citing Ex. 1024 ¶¶ 26–27). In other words, the transmitted data represent that the user has selected the PIP window using a stylus contact, the stylus continuously contacted the screen from the first location (the user’s selection of the PIP window) to the second location (the

user's intended terminal position of the PIP window) to effectuate the movement. *Id.*

During oral hearing, the panel and Petitioner's counsel had the following exchange regarding this argument by Petitioner:

JUDGE CHUNG: So my question is: How does the repositioning control signal sent to the TV or the appliance teach this continuous contact or dragging?

MR. BAJAJ: So the repositioning control signal is representative of the motion. It's representative of the motion because the user has intended to reposition the PIP window, and the user expresses that intent by dragging the PIP window on the remote control. So the user expresses that intent by making a continuous contact by selecting the PIP window on the remote control and moving it to another location.

So in response to that, the remote sends commands, repositioning control signals, to the television to effectuate that movement, to move the PIP window from, you know, as in Figure 10C of Herz, from the top right corner to the bottom left.

Tr. 21:10–25.

As discussed above in Section III.C (Claim Construction), Petitioner argues that, under our construction of the Second Data Limitation, there is no data streaming requirement, no temporal requirement of transmission during the second input, and no requirement that second data indicate the path of the continuous contact from the first location to the second location at any particular level of granularity. Pet. Reply 3–5, 8–9.

In response, Patent Owner asserts that it seeks no such limiting construction but, rather, is “simply trying to make the point that data that indicates nothing more than the location where a user terminates their dragging gesture on a touch screen display *cannot* represent continuous contact from a first location to a second location on a touch-sensitive surface.” PO Sur-reply 1.

Upon considering the full record, we agree with Petitioner’s argument and disagree with Patent Owner’s argument. In particular, we agree with Petitioner that Herz’s transmission of a repositioning control signal satisfies the Second Data Limitation as transmitting data “representative of the continuous contact from the first location to the second location on the touch sensitive surface” for the reasons explained by Petitioner. As discussed above, Patent Owner argues that Herz’s transmitted repositioning control signal is “independent of (and thus does not *indicate*) the path that a user’s finger or stylus takes on the touch screen during a dragging gesture.” PO Resp. 26 (emphasis added). But the claim recites transmitting second data “representative” of the moving touch made across the touch-sensitive surface, which we construe to mean transmitting second data “representative” of the “continuous contact” from the first location to the second location on the touch sensitive surface. That is, both the claim language and our construction recite “representative,” *not* “indicate” or “indicative.”

We note that limitation [1.3] of claim 1 recites “accepting via the touch-sensitive surface . . . a second input type *indicative* of a moving touch made across the touch-sensitive surface,” whereas limitation [1.4], i.e., the Second Data Limitation, recites “transmit second data . . . the second data

being *representative* of the moving touch made across the touch-sensitive surface.” Ex. 1001, 7:18–20, 7:21–25 (emphases added). This shows that the patentee knew to use the word “indicative” to specify what the recited “second input type” of limitation [1.3] requires. If the patentee had intended to similarly specify the requirement of the “second data” recited in limitation [1.4], it could have done so using the language of limitation [1.3], but did not. *See Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1379 (Fed. Cir. 2018) (citing *Unwired Planet, LLC v. Apple Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016)). Thus, Patent Owner’s reading of limitation [1.4] to require the “second data” to “*indicate . . . the path that a user’s finger or stylus takes on the touch screen during a dragging gesture*” would have the effect of erasing the material differences between the claim language of limitation [1.3] and limitation [1.4]. Limitation [1.4] requires the recited “second data” to simply “represent” the “continuous contact” from a first location to a second location on the touch sensitive surface, and nothing further.

Accordingly, we agree with Petitioner that Herz’s transmission of a repositioning control signal satisfies the Second Data Limitation as transmitting data “representative of the continuous contact from the first location to the second location on the touch sensitive surface” for the reasons explained by Petitioner.

Next, Patent Owner asserts that Petitioner’s argument in the Reply that Herz’s repositioning control signals meet the Second Data Limitation should be disregarded because Petitioner has “completely changed its theory as to how Herz teaches the Second Data Limitation” in the Reply. *See* Paper 35, 1, 5; PO Sur-reply 21–22. Patent Owner argues, *inter alia*, “the

Petition failed to address whether Herz’s ‘motion data’ represents: (i) continuous contact; (ii) from the first location; and (iii) to the second location” (Paper 35, 3 (citing Pet. 38–41)) and Petitioner in its Reply “improperly changed its invalidity theory and attempted to ‘gapfill’ how Herz teaches the Second Data Limitation” by presenting a new argument for the first time in the Reply (*id.* (citing Pet. Reply 8)). Petitioner disagrees and argues that what is presented in the Reply is the line of argument that explains “how a POSITA would have interpreted Herz’s repositioning control signals to teach the second data term, citing Dr. Polish’s reply declaration, and this explanation directly follows from the Petition’s argument that Herz transmits ‘data . . . in response to the user’s movement or gesture (e.g., dragging a PIP window)” Paper 34, 3–4 (citing Pet. 41)). We agree with Petitioner’s argument and disagree with Patent Owner’s argument.

As discussed above, contrary to Patent Owner’s argument, the Petition discussed Herz’s teachings of “a gesture input type on a touch screen display (e.g., *dragging*) that is representative of ‘continuous contact from a first location to a second location on the touch sensitive surface’” (Pet. 38–39 (underlined emphasis added)), as well as Herz’s disclosure of “when a PIP window is dragged on the remote control, ***[i]n response to the command to reposition the PIP window screen, the remote control issues the corresponding repositioning control signals to the television set by transmitting the new location and/or size of the PIP window as entered by the user***” (*id.* at 39–40 (underlined emphasis added) (citing Ex. 1006, 11:64–12:1)). The Petition also argued that a person of ordinary skill in the art would have understood that “these ***repositioning control signals*** convey

or carry, in correspondence with the user's dragging motion, motion data ('second data') to the television set ('one or more appliances') as ***control parameters*** to command the operation of the television to make adjustments to what is shown on the screen." *Id.* at 40 (underlined emphasis added) (citing Ex. 1004, 115). In substance, these arguments and evidence presented in the Petition depict Herz as describing that when a PIP window on the remote control is selected by a touch-down on the window and then dragged by continuous contact from the touch-down point to another point on the touch screen, data representative of the continuous contact from the first location to the second location on the touch screen (the claimed "second data") is transmitted to the television set (the claimed "one or more appliances") in the form of the "repositioning control signals" issued by the remote control with the "controlling parameters such as the location and the size of the PIP window" for the television set. Thus, the essence of Petitioner's argument remains the same in the Reply. Petitioner's arguments in the Reply are proper responsive arguments expanding on essentially the same argument presented in the Petition in response to Patent Owner's arguments raised in the Patent Owner Response. *See Belden*, 805 F.3d at 1078–80.

Next, Patent Owner asserts that "Petitioner cannot identify where Herz purportedly teaches, describes, meets, or discloses that its repositioning control signals may include data indicating selection of a PIP window and a drag or continuous contact across the screen" because "Petitioner and its expert tellingly fail to include ***any*** citations to Herz ***anywhere*** in the Reply or the declaration in support thereof." PO Sur-reply 4. We disagree with Patent Owner's argument because, as discussed above, Petitioner described

in the Petition, with citations to Herz and the Polish Declaration, the disclosures of Herz Petitioner relies on, including the disclosure that “[i]n response to the command to reposition the PIP window screen, the remote control issues the corresponding repositioning control signals to the television set by transmitting the new location and/or size of the PIP window as entered by the user” (Pet. 40 (emphasis by Petitioner) (quoting Ex. 1006, 11:64–12:1)); “the television set should be able to accept the controlling parameters such as the location and the size of the PIP window” (*id.* (emphasis by Petitioner) (quoting Ex. 1006, 12:11–30)); and “transmitting said second set of controlling parameters from the remote control to the television; and adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters” (*id.* (emphasis by Petitioner) (quoting Ex. 1006, 20:11–25)). In addition, the Polish Declaration provided extensive discussion, with citations, of the disclosures of Herz Dr. Polish further discusses in his Reply Declaration. *See* Ex. 1004, 115–120. Thus, Petitioner’s Reply and the Polish Reply Declaration are adequately supported by evidence of record. *Compare* Pet. 38–41, *with* Pet. Reply 7–9; *compare also* Ex. 1004, 115–120, *with* Ex. 1024 ¶¶ 26–27.

Lastly, Patent Owner contends that Petitioner improperly presents for the first time in the Reply an analysis of Herz under the correct construction of the term “second data being representative of the moving touch made across the touch-sensitive surface” because the Petition argued that the term should be given its plain and ordinary meaning. PO Sur-reply 22; Paper 35, 2. We disagree with Patent Owner’s argument.

As discussed above, the Decision construed the term “second data being representative of the moving touch made across the touch-sensitive surface” to mean “second data being representative of the *continuous contact* from the first location to the second location on the touch sensitive surface.” Inst. Dec. 21–24 (emphasis added). Although the Petition did not advance this construction, the Petition discussed extensively how Herz and Zetts teach “dragging” that involves “*continuous contact* from a first location to a second location on the touch sensitive surface.” See Pet. 38–41 (emphasis added). We also agree with Petitioner that Petitioner’s Reply properly presented analysis under our claim construction “as expressly endorsed” by the Trial Practice Guide. Paper 34, 2 (citing Patent Trial and Appeal Board Consolidated Trial Practice Guide,⁹ 49).

For the foregoing reasons and based on the complete record, we determine that Petitioner has demonstrated sufficiently that the combination of Herz and Zetts teaches the Second Data Limitation of claim 1.¹⁰

⁹ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

¹⁰ In the Institution Decision, we encouraged the parties to address during trial Herz’s alternative embodiments where the size and location of the PIP window displayed on the television set are directly controlled from the remote control by dragging the PIP window “on the on-screen display on the television set 1020.” Inst. Dec. 37–38 (citing Ex. 1006, 11:49–60). Patent Owner argues that Petitioner has not shown sufficiently that these disclosures of Herz (which Patent Owner calls the “OSD Embodiment” (*see* PO Resp. 10)) teach the Second Data Limitation. PO Sur-reply 9. We agree with Patent Owner’s argument. Neither the Petitioner Reply nor the Polish Reply Declaration cite or provide any independent analysis of Herz’s disclosures mentioned in the Institution Decision, other than citing the Institution Decision itself. See Pet. Reply 11–12 (citing Inst. Dec. 38); Ex. 1024 ¶ 39. Based on the full record, we determine that Petitioner has not

e. Limitation [1.5]

Petitioner identifies as claim element [1.5] the limitation of claim 1 reciting “causing the universal controlling device to distinguish the first input type received via the touch-sensitive surface from the second input type received via the touch-sensitive surface.” Pet. 42. Patent Owner identifies this limitation as the Distinguishing Limitation. PO Resp. 27. Petitioner contends that the combination of Herz and Zetts teaches or renders this limitation obvious. Pet. 42.

As discussed above with respect to limitations [1.2] and [1.3], Petitioner demonstrates sufficiently that Herz teaches “accepting via the touch-sensitive surface of the universal controlling device a first input type indicative of a static touch made upon the touch-sensitive surface” and that the combination of Herz and Zetts teaches or renders obvious “accepting via the touch-sensitive surface of the universal controlling device a second input type indicative of a moving touch made across the touch-sensitive surface.” Citing the testimony of Dr. Polish, Petitioner asserts that “it would have been obvious to a [person of ordinary skill in the art] that Herz’s remote control, in order to function as described, would need to ‘*distinguish the first input type . . . from the second input type*’; otherwise, it would not respond correctly to the user’s different inputs.” Pet. 42 (citing Ex. 1006, 5:7–13; Ex. 1004, 121–122).

Petitioner also asserts that the combination of Herz and Zetts explicitly teaches limitation [1.5]. Pet. 42. According to Petitioner, Zetts,

carried its burden to show that Herz’s disclosures relating to the OSD embodiment teach the Second Data Limitation or any other limitations of claim 1. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

like Herz, discloses the different types of input made on a touch screen display because Zetts describes that “input signals generated from a pointing device, such as a stylus or finger, can be categorized either as *a mouse input signal [corresponding to button commands]* or as *a gesture or handwriting input signal.*” *Id.* (emphases and alteration by Petitioner) (quoting Ex. 1007, 2:28–33). Petitioner also points to Zetts’s explicit disclosures of distinguishing different types of inputs, including the following passages: “*In order to utilize [the different] types of input signals, they must be distinguished* by the data processing system” (*id.* at 42–43 (emphasis and alteration by Petitioner) (quoting Ex. 1007, 2:41–42); “a method and apparatus for efficiently *distinguishing between different types of input signals simulated by a pointing device*” (*id.* at 43 (emphasis by Petitioner) (quoting Ex. 1007, Abstr.)). Petitioner also asserts that Zetts provides an improved AUI for a touch screen display, which is able to “more efficiently . . . *distinguish between mouse [button] commands and gesture or character data.*” *Id.* (emphasis and alteration by Petitioner) (quoting Ex. 1007, 5:4–52, 6:2–13).

Addressing the combination of Herz and Zetts, Petitioner asserts that Herz describes a universal remote control including a “software program” that processes different input types made on the touch screen display, such as button presses or dragging of windows. Pet. 43 (citing Ex. 1006, 11:8–11, 9:11–19, 13:12–21). Petitioner argues that Zetts teaches how to implement such a software program by describing an improved AUI for a touch screen display, which is able to “more efficiently to distinguish between mouse commands and gesture or character data.” *Id.* (emphasis

omitted) (citing Ex. 1007, 5:4–52, 6:2–13). Petitioner also quotes the following disclosure in Zetts regarding AUI:

The present invention includes a *computer module within the stylus or finger-based operating system extension (AUI) to differentiate between touch input signals intended to emulate a mouse command, such as a mouse button down, mouse move, or a mouse button up, and those touch input signals which are to be considered a gesture or character.*

Id. (quoting Ex. 1007, 5:24–27 (emphasis by Petitioner)). Petitioner argues that by combining these teachings of Herz and Zetts, e.g., implementing Zetts’s improved AUI software program on Herz’s remote control device, the combination of Herz and Zetts teaches or renders obvious “causing the universal controlling device to distinguish the first input type received via the touch-sensitive surface from the second input type received via the touch-sensitive surface,” as recited in claim 1. *Id.* at 44.

Patent Owner contends that Zetts does not distinguish between a static input and a moving input. PO Resp. 38. Patent Owner asserts that Zetts distinguishes only between moving input types because, although Zetts’s AUI software is able to “distinguish between mouse commands and gesture or character data” (*id.* at 38–39 (citing Ex. 1007, 5:3–6, 5:24–27)), Zetts describes that “mouse commands” and “gesture or character data” are both “*moving touch input types.*” (*id.* at 39 (citing Ex. 1007, 2:42–47, 3:17–30, 3:44–46, 3:53–54, 5:18–23, 5:31–37, 5:47–52, 7:20–30, claims 4 and 13, Figs. 3, 6–8)).

In the portion of Zetts cited by Petitioner (as well as by Patent Owner), however, Zetts describes that the AUI software recognizes a “mouse button down” and a “mouse button up,” as well as “mouse move,” and is able to “differentiate” these mouse commands from “those touch input

signals which are to be considered a gesture or character.” *See* Ex. 1007, 5:24–27; Pet. 43 (citing Ex. 1007, 5:4–52). Zetts also describes that

Once the user reaches the desired position and *stops moving for the set time delay*, a mouse command is generated at the point at which the user has stopped. . . . For example, if the user *stops moving* the pointing device *at a desired position for 200 milliseconds*, a mouse command, such as a *mouse up button command*, at the desired position is communicated to the application program.

. . . .

If, on the other hand, the user *does not stop* at a particular point *for the specified time delay period* and *instead lifts off the touch screen*, the AUI selects the set of input points generated by the pointing device (the stroke) as candidate points for character or *gesture recognition*.

Ex. 1007, 5:31–44 (emphases added). These disclosures show that, although Zetts’s mouse commands and gestures may involve moving touches, Zetts distinguishes mouse up or mouse down button commands from gestures based on whether the input touch is stopped or standing still at the same location for a specified amount of time, e.g., 200 milliseconds. In other words, what is distinguished in Zetts is whether there is a stationary or static touch for a fixed amount of time. This supports Petitioner’s argument that, although Zetts’s mouse commands may include movement, Zetts teaches distinguishing a “static touch” from a “moving touch.” *See* Pet. Reply 14–16.

In addition, Petitioner cites deposition testimony from Mr. Bear, Patent Owner’s declarant, and argues that Mr. Bear admitted that a “static touch” from a user may not be entirely without motion, yet such a touch with some minimal motion would still be interpreted as the “first input type.” Pet. Reply 14–15 (citing Ex. 1028, 41:10-12 (“Q. . . . So a touch very small

movement and release might be recognized as a static touch? A. That's right.”)). Patent Owner does not dispute Petitioner's characterization of Mr. Bear's testimony. *See* PO Sur-reply 14–15.

Based on the complete record, we determine that Petitioner has shown sufficiently that the combination of Herz and Zetts teaches or renders obvious “causing the universal controlling device to distinguish the first input type received via the touch-sensitive surface from the second input type received via the touch-sensitive surface,” as recited in claim 1.

f. Conclusion on Claim 1

In consideration of the foregoing and based on the complete record, we are persuaded by Petitioner's arguments and evidence, notwithstanding Patent Owner's arguments, addressed above. Having weighed each of the *Graham* factors, including the scope and content of the prior art and the differences between the prior art and the challenged claim, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 1 is unpatentable under 35 U.S.C. § 103(a) over the combination of Herz and Zetts.

F. Obviousness over Herz and Zetts in Combination with Finkelstein

Claim 5 depends from claim 1 and further recites “the second data comprises data for commanding movement of a displayed cursor associated with the one or more appliances.” Ex. 1001, 7:44–46. Petitioner adds the teachings of Finkelstein (Ex. 1008) to the basic combination of Herz and Zetts in an asserted ground of obviousness as to claim 5. Pet. 48–51.

Finkelstein describes a method for managing simultaneous display of multiple windows in a graphical user interface (GUI). Ex. 1008, Abstr.

Finkelstein also describes using a cursor for various windows management functions, such as clicking on objects, activating menus and/or control objects in menus, double clicking on objects to activate them, and clicking and holding an object to “drag” the object or selection to a different location, etc. *Id.* at 7:29–34.

Petitioner’s main theory is that it would have been obvious to a person of ordinary skill in the art to add cursor functions to repositioning or resizing of the PIP window discussed above with respect to limitation [1.4]¹¹ by combining Finkelstein’s teaching of using a cursor to perform windows management functions (e.g., moving or resizing a window) with the teachings of Herz and Zetts regarding the control of the size and location of the PIP window on the remote control and the television set. *See* Pet. 48–50 (citing Ex. 1006, 11:44–12:10; Ex. 1008, 2:47–49, 6:34–37, 7:18–35, Figs. 1, 7B; Ex. 1004, 138–142 (providing a detailed mapping of the limitations of claim 5 to the disclosures of Herz, Zetts, and Finkelstein)). In the proposed combination, Petitioner argues that any movement of the cursor appearing on Herz’s remote control display screen (e.g., for dragging or repositioning an emulated PIP window) would be replicated in a cursor appearing on the television screen by the remote control sending cursor movement control data to the television set. *Id.* at 50; Pet. Reply 21–22 (citing Ex. 1004 ¶¶ 110–112). In the cited paragraph of his Declaration, Dr. Polish testifies that a person of ordinary skill in the art would have understood that “the data

¹¹ Petitioner also discusses certain disclosures relating to Herz’s OSD embodiment. *See* Pet. 47, 50–51. We need not reach the question of whether Petitioner’s analysis of the OSD disclosures is sufficient for claim 5 because we find that Petitioner makes a sufficient showing for claim 5 based on the non-OSD disclosures of Herz.

for such cursor movement on Herz's touch screen display would be provided or transmitted to a television set for replication of the same." Ex. 1004 ¶ 112 (citing Ex. 1006, 11:55–12:1). Thus, Petitioner asserts that the combination of Herz, Zetts, and Finkelstein teaches "the second data comprises data for commanding movement of a displayed cursor associated with the one or more appliances," as recited in claim 5. Pet. 50.

According to Petitioner, the motivation to combine Herz and Zetts with Finkelstein comes from the references themselves because Herz states "the methods of resizing and repositioning Microsoft (TM) windows can be similarly implemented in the remote control of the present invention" and Finkelstein describes those methods for managing Microsoft windows to provide "continuous, automatic adjustment to window size and position based on analysis of a user's interaction with a computer system." Pet. 48 (citing Ex. 1008, 1:7–11; Ex. 1004 ¶ 113); *see also* Ex. 1006, 12:8–10.

In the Patent Owner Response and Patent Owner Sur-reply, Patent Owner does not dispute Petitioner's showing on the combined teachings of Herz, Zetts, and Finkelstein beyond Patent Owner's arguments advanced with respect to claim 1 discussed above. *See* PO Resp. 47–56; PO Sur-reply 18–21. Patent Owner also does not dispute Petitioner's contention that the motivation to combine Herz and Zetts with Finkelstein comes from the references themselves. *See* PO Resp. 53–56; PO Sur-reply 20–21. Instead, Patent Owner argues, citing the testimony of Mr. Bear, a person of ordinary skill in the art would have had no reason to "employ a cursor on the GUI of Herz's remote control" because "the user's finger or stylus would cover the cursor when touching the touch screen, and thus the user would not be able to see the cursor when using the touch screen." PO Resp. 55 (citing

Ex. 2005 ¶ 145). But Mr. Bear does not explain why a person of ordinary skill could not have employed ordinarily creative steps to avoid the problem he identifies (e.g., by simply making the cursors larger or the stylus thinner). *See KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”), 418 (“a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”). Nor does he cite any supporting evidence for his conclusory statements. *See* Ex. 2005 ¶ 145.

Next, Patent Owner argues that Finkelstein is not analogous art. PO Resp. 48–53; PO Sur-reply 18–20. We agree with Patent Owner that Finkelstein is not from the same field of endeavor as the ’504 patent. *See* PO Resp. 48–50. As discussed above in Section III.E.1.a, Petitioner argues, and we agree, that the field of endeavor of the ’504 patent is “controlling device with a touch-sensitive display.” *See* Pet. Reply 25.¹² In the context of its analysis of claim 5, however, Petitioner contends that the field of endeavor of the ’504 patent is “electronic devices with GUI displays.” Pet. 46. In its Reply, Petitioner argues that the field of endeavor is broadly “controlling devices.” Pet. Reply 26. But Petitioner does not explain why the field of endeavor of the ’504 patent is different for claim 1 from claim 5, which depends from claim 1. In any event, for the reasons discussed above in Section III.E.1.a, we determine the field of endeavor of the ’504 patent is “controlling device with a touch-sensitive display.” Thus, Finkelstein is not

¹² In the Petition, Petitioner argued that the field of endeavor of the ’504 patent is “electronic devices (e.g., remote control) with a touch-sensitive display.” Pet. 17, 19–20.

from the same field of endeavor because Finkelstein does not describe any device with a touch-sensitive display.

Nonetheless, we agree with Petitioner that Finkelstein is reasonably pertinent to one or more of the problems of the '504 patent. Petitioner argues that the '504 patent acknowledges a need for a universal controlling device that is “adapted to provide remote, cursor control functionality” and Finkelstein’s teachings of controlling a cursor or pointer, therefore, “logically would have commended” itself to the inventor’s attention. Pet. Reply 26 (citing Ex. 1001, 2:3–8). Patent Owner contends that Finkelstein is not reasonably pertinent to the problem of the claimed invention of the '504 patent because the '504 patent is concerned with creating a universal remote control device with a dual-mode touch-sensitive display, whereas Finkelstein is concerned with managing the simultaneous display of multiple windows on a personal computer’s monitor. PO Resp. 51–52.

As discussed above, a reference need only be “reasonably pertinent to *one or more* of the particular problems to which the claimed inventions relate” to qualify as analogous art. *Donner Tech.*, 979 F.3d at 1361 (emphasis added). We agree with Petitioner that one of the particular problems with which the '504 patent’s inventor was involved is to provide remote, cursor control functionality because the '504 patent describes a second operational mode of the controlling device, which is a pointer control mode. *See* Ex. 1001, 5:15–16, 5:35–38. The '504 patent further describes that

all of the user interface functions typically associated with mousing are included through use of *the pointer control mode* of the universal controlling device 100 such as: double-tapping to stick the pointer to a window bar, *dragging the window* across

the desktop, and single tapping to release; double-tapping to open a window or start an application; etc.

Ex. 1001, 6:3–9 (emphases added). Because, as discussed above, Finkelstein describes using a cursor to perform various windows management functions, such as clicking on objects, double clicking on objects to activate them, and clicking and holding an object to “drag” the object or selection to a different location, etc. (*see* Ex. 1008, 7:29–34), Finkelstein logically would have commended itself to the ’504 patent’s inventor dealing with the particular problem of creating a controlling device with a pointer control mode that includes various windows management functions. Thus, we agree with Petitioner that Finkelstein is analogous art.

In consideration of the foregoing and based on the complete record, we are persuaded by Petitioner’s arguments and evidence, notwithstanding Patent Owner’s arguments, addressed above. Accordingly, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 5 is unpatentable under 35 U.S.C. § 103(a) over the combination of Herz, Zetts, and Finkelstein.

G. Patent Owner’s Constitutional Challenge

Patent Owner argues that Administrative Patent Judges are unconstitutionally appointed principal officers, and that the decision in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019), *cert. granted sub nom. United States v. Arthrex, Inc.*, 2020 WL 6037206 (Oct. 13, 2020), was “ineffective” to cure the Constitutional violation. PO Resp. 56–57.

We are bound by the Federal Circuit’s decision in *Arthrex*, which addressed this issue. *See Arthrex*, 941 F.3d at 1337 (“This as-applied

severance . . . cures the constitutional violation.”); *see also Arthrex, Inc. v. Smith & Nephew, Inc.*, 953 F.3d 760, 764 (Fed. Cir. 2020) (Moore, J., concurring in denial of rehearing) (“Because the APJs were constitutionally appointed as of the implementation of the severance, *inter partes* review decisions going forward were no longer rendered by unconstitutional panels.”). Accordingly, we do not consider this issue any further.

IV. CONCLUSION¹³

For the foregoing reasons, we conclude that Petitioner has met its burden of proof, by a preponderance of the evidence, in showing that claims 1 and 5 of the ’504 patent are unpatentable. The chart below summarizes our conclusions.

Claims	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1	103(a)	Herz, Zetts	1	
5	103(a)	Herz, Zetts, Finkelstein	5	
Overall Outcome			1, 5	

¹³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

In consideration of the foregoing, it is
ORDERED that claims 1 and 5 of the '504 patent are determined to
be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision,
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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