

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.

Petitioner

v.

SMITH INTERFACE TECHNOLOGIES, LLC,

Patent Owner

IPR2024-01085
Patent 10,649,580

PATENT OWNER RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Shorthand	Description
2001	Davis Declaration	Declaration of Marc Davis, Ph.D.
2002	Davis CV	CV of Mark Davis, Ph.D.
2003	JCC	Excerpt of Joint Claim Construction Chart Exhibit B
2004	Stay Order	October 2, 2024 Order Granting in Part Apple's Motion to Stay in <i>Smith Interface Technologies, LLC v. Apple Inc.</i> , 3-23-cv-01187, S.D. Cal. (Dkt. No. 127)
2005	Licygiewicz	Declaration of Art Licygiewicz ISO PHV Motion
2006	Mahon CV	CV of Mark P. Mahon, Ph.D.
2007	Cockburn-1	April 16, 2025 Transcript of the Deposition of Andrew Cockburn, Ph. D.
2008	Cockburn-2	April 17, 2025 Transcript of the Deposition of Andrew Cockburn, PhD.
2009	Zoom Definition	Merriam-Webster's Dictionary Definition for "zoom"
2010	Transparent Definition	Merriam-Webster's Dictionary Definition for "transparent"
2011	'918 Provisional	U.S. Provisional Patent Application No. 61/581,918
2012	Mahon	Declaration of Mark P. Mahon, Ph.D.

I. INTRODUCTION

The '580 Patent discloses inventive techniques for performing zoom operations on elements in a user interface featuring multiple virtual display layers.

As explained below, the Petition fails to show that any of the Challenged Claims were obvious over the asserted prior art combinations. Petitioner's proposed grounds fail to disclose several Limitations, including that a second virtual display layer appears to have a lesser depth than the first virtual display layer, performing a zoom operation on at least a portion of the contents without performing a zoom operation on the plurality of marking, and Limitations involving touch because the Petitioner neglects the difference between hovering and touching a screen.

Petitioner's obviousness arguments rely on conclusory and legally insufficient assertions, plainly guided by hindsight reasoning. For example, Petitioner overlooks that the Ramos Paper, Ramos Video and Ording (collectively, the "RROD combination") fails to suggest making the Ramos Zlider semitransparent as Petitioner asserts. Nor does Petitioner provide any motivation for doing so. Ultimately, a POSITA would not have been motivated to combine these references to arrive at the particular combinations of claimed features in the '580 Patent because a POSITA would never have looked at Hayward or Ording to improve high precision parameter manipulation techniques.

The Board should therefore affirm patentability of all Challenged Claims.

II. OVERVIEW OF THE '580 PATENT

The '580 Patent “generally relate[s] to touch screens.” EX1001, 1:36–37. Specifically, the '580 Patent features a camera on a mobile device, zooming functionality, various virtual display layers, implementation of translucency, and a display of a plurality of markings in response to a touch exceeding a threshold. *See* EX1001, Claims 1, 22, and 58. The '580 Patent explains that “[i]n various embodiments, a 3D layered user interface may make use of multiple virtual display layers,” and “[i]n the context of the present description, a virtual display layer refers to a collection of display elements which have all been assigned the same apparent depth within the 3D layered user interface.” EX1001, 68:6–11; EX2011, [00793].

The '580 Patent further states that “virtual display layers may be given the appearance of depth through the use of 3D depth cues.” EX1001, 68:25–27; EX2011, [00795]. Such visual cues “refer[] to an effect, manipulation, transformation, animation, or operation which gives a visual indication of simulated depth. For example, in one embodiment, a 3D depth cue may be a blur operation, such that layers located at successively greater depths may appear blurrier than those closer to the user. In various embodiments, one or more 3D depth cues may be used to give the appearance of depth to one or more virtual display layers.” EX1001, 68:27–35; EX2011 [00795]. Different depth cues may be used for different virtual display layers; depth cues may also “be used in conjunction with a 3D layered user

interface implemented in a layered display device, to enhance the layered appearance.” EX1001, 68:36–40; EX2011 [00795].

A. Independent Claims 1, 22, and 58

Independent claims 1, 22, and 58 of the ’580 Patent are directed to an electronic device programmed to perform certain functions. *See generally* EX1001. Specifically, claims 1, 22, and 58 include “when” or “in response to” “an aspect of the *touch* being *detected to surpass a threshold*,¹ displaying, via the touch screen, a plurality of markings in *a second virtual display* layer that appears to have a *lesser depth than the first virtual display layer*, where at least a portion of the second virtual display layer is at least partially translucent so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” *See* Limitations [1h], [22d], [58c]. Additionally, “the at least portion of the second virtual display layer is at least partially translucent so that *a result of the zoom operation* on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” *See* Limitations [1l], [22g], [58g].

¹ All emphasis added unless noted otherwise.

III. LEVEL OF ORDINARY SKILL

At the time of the invention of the '580 Patent, a POSITA would have had at least a bachelor's degree in computer science, computer engineering, electrical engineering, or a related field, and would have had at least two years of relevant work experience in the design and development of graphical user interfaces (GUIs) or equivalents thereof. Less work experience may be compensated by a higher level of education and vice versa. EX2012, ¶35. Dr. Cockburn's definition of a POSITA is overbroad to the extent it includes work experience in the design and development of human-computer interfaces. EX2012, ¶36.

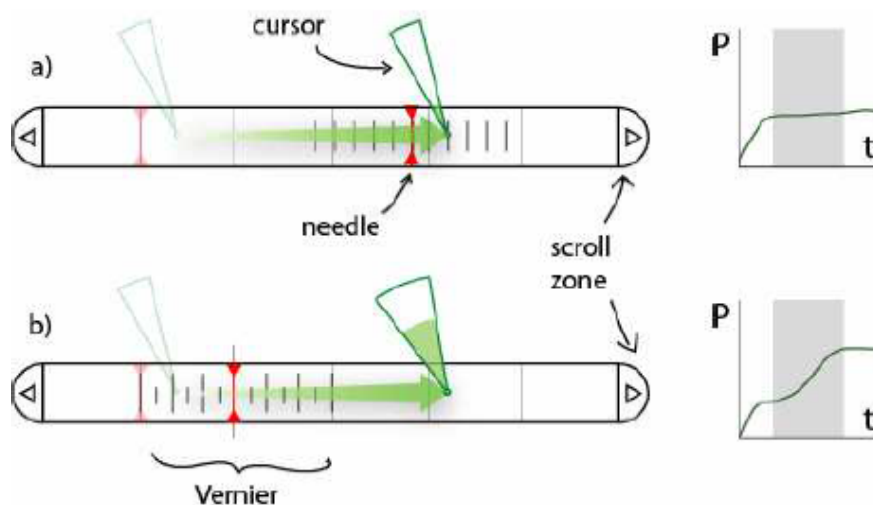
IV. CLAIM CONSTRUCTION

The claims are construed "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100; *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Petitioner "submits that no claim terms need to be construed to resolve issues of controversy in the present Petition." Pet. (Paper 2), 2. Patent Owner likewise agrees that no formal constructions of any claim terms are necessary. In the Litigation, however, Apple and Smith Interface agreed to construe "virtual display layer" to mean "one or more display elements that appear at the same apparent depth of display." EX2003, 9–10.

V. OVERVIEW OF THE PRIOR ART

A. Ramos Paper (EX1004)

The Ramos Paper is titled “Zliding: Fluid Zooming and Sliding for High Precision Parameter Manipulation,” and “introduces the notion of Zoom Sliding, or *Zliding*, for fluid integrated manipulation of scale (zooming) via pressure input while parameter manipulation within that scale is achieved via x-y cursor movement (sliding).” EX1004, Abstract. The Ramos Paper “present[s] the Zlider (Figure 1), a widget that instantiates the Zliding concept.” EX1004, Abstract.



As an interactive widget, Zlider offers high precision parameter manipulation and immediate feedback for continuous, rather than discrete, parameter adjustments.

EX1004, 1. The Ramos Paper evaluates “three different input techniques for cursor position,” but ultimately elects the “stylus with integrated isometric pressure sensing tip” as the favored choice. EX1004, Abstract. “The scale factor of the Zlider is adjusted by changes in pressure at the stylus’ tip, and the stylus’ x-y position enables sliding of the parameter’s value.” EX1004, 3.

The Zlider also features “a clutching mechanism that enables users to completely stabilize pressure and hence lock the zoom level while sliding.” EX1004, 3. Clutching is activated “by sliding the cursor away from the Zlider’s working rectangle,” and declutching occurs by “[r]entering the working rectangle.” EX1004, 3. “While clutched, users can still slide outside the working rectangle [] but the widget maintains its scale at the last reported value regardless of pressure variations.” EX1004, 3.

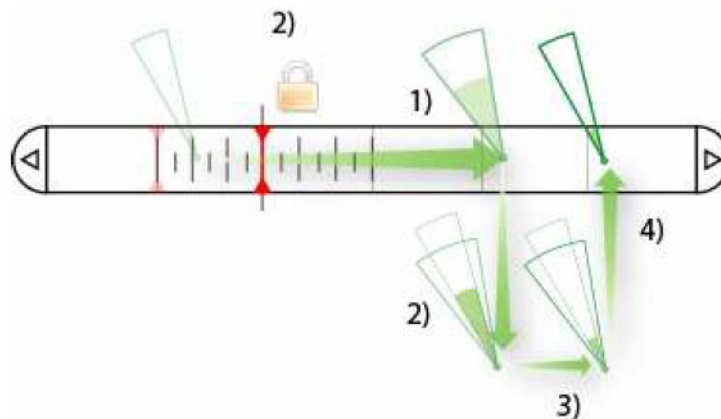
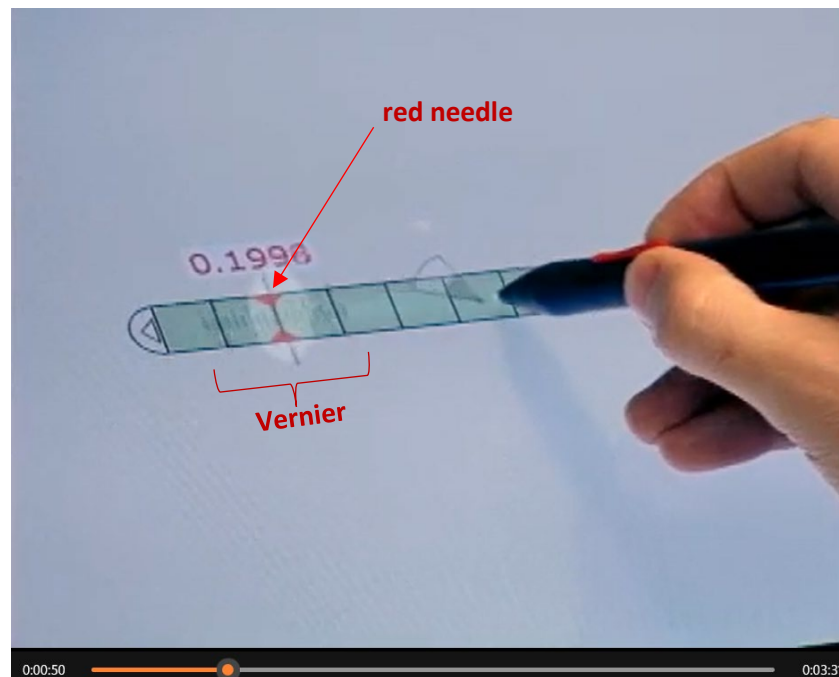


Figure 4: Clutching the zoom level

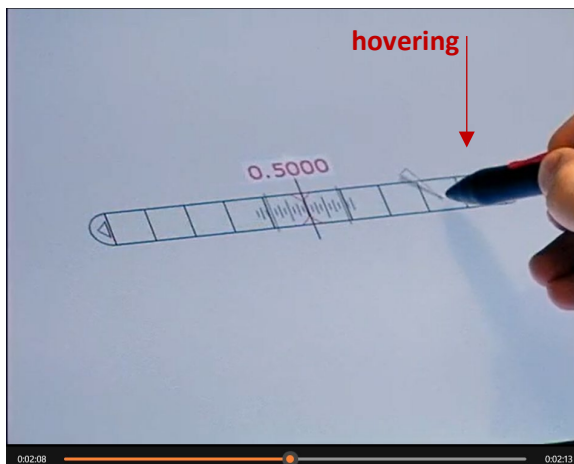
B. Ramos Video (EX1005)

The Ramos Video illustrates the use and functionality of the Zlider described in the Ramos Paper. The Zlider “behaves like a regular selector with the difference that users can, while dragging or sliding, explicitly adjust the precision they wish to interact at or zoom by changing the amount of pressure they apply with an input device.” EX1005, 0:14–0:27. The Zlider uses a pressure cursor that “provides users with a real-time visual indicator of the pressure they are applying with the input device. As the user slides across the working area, a red needle indicates the parameter’s magnitude relative to its minimum and maximum values at the extremes of the widget. The Zlider also displays a Vernier, which adapts its grid spacing depending on the widget’s current precision.” EX1005, 0:27-0:59.

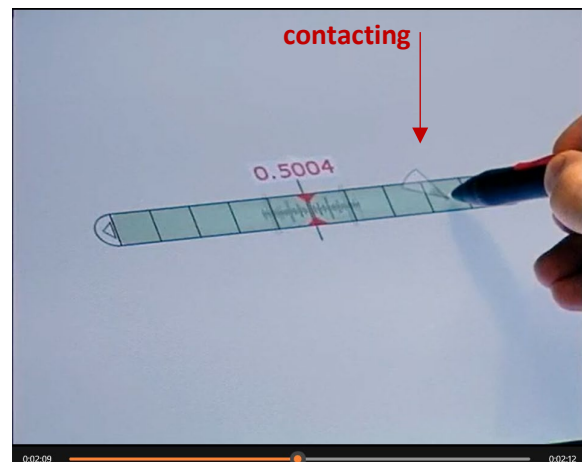


EX1005, 0:50 (Zlider) (annotated)

In addition to the clutching mechanism described above in the Ramos Paper, the Ramos Video explains that “[u]sers can also hold the slider’s current scale by using the *hover* region of the input device,” which “allows them to perform micro parameter adjustments without the need to reacquire a precision level as well as to reposition the cursor as needed.” EX1005, 2:00-2:45. “The hover region of the input device also allows users to reach arbitrarily high precision levels. ... by repeatedly alternating between increasing pressure and lifting the stylus while remaining in tracking distance.” *Id.* “By leaving and re-entering the Zlider’s working area while in the hover region, users can also decrease ... precision.” *Id.*



EX1005, 2:08 (annotated) (hovering)



EX1005, 2:09 (annotated) (contacting)

C. **Ording (EX1006)**

Ording is titled “Methods For Determining A Cursor Position From A Finger Contact With A Touch Screen Display,” and relates “to portable devices that adaptively determine a cursor position from a finger contact with a touch screen

display and then perform operations according to the cursor position.” EX1006, [0003]. Ording developed its methods to address the difficulty in navigating compact mobile devices forced to support increasing functionality but armed with outdated user interfaces such as physical pushbuttons. EX1006, [0004]–[0007]. Specifically, it addresses challenges in accurately identifying and responding to user input on a compact screen, which is essential for improving usability on multifunctional mobile devices. EX1006, [0004], [0006].

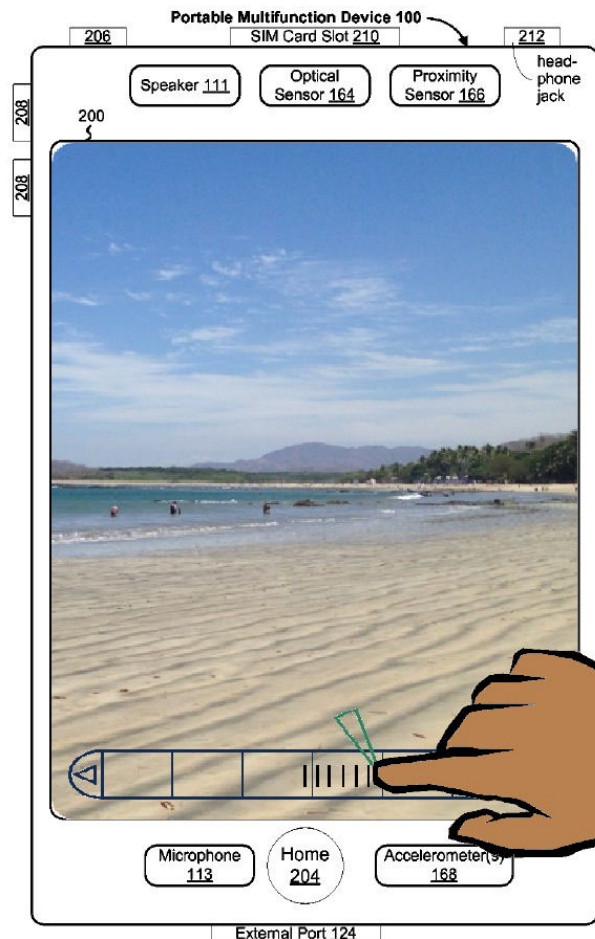
The invention includes a method where the device identifies the contact area of a user’s finger on the touch screen and determines a cursor position based partially on this contact area. EX1006, [0009]. Other factors influencing cursor positioning include distances to nearby user interface elements and specific “activation susceptibility” values for each element, which improve the precision and accuracy of the touch input. EX1006, [0009]. This method allows for dynamic adaptation to different user interactions, improving the user experience by reducing accidental selections and enhancing ease of use. *See* EX1006, [0007]. The patent further covers the application of this cursor positioning method to various device functions, such as “telephoning, video conferencing, e-mailing, instant messaging, blogging, digital photographing, digital videoing, web browsing, digital music playing, and/or digital video playing.” EX1006, [0008].

VI. GROUND 1A: THE PETITION FAILS TO RENDER OBVIOUS CLAIMS 1, 3, 17, 19, 22, 24, 36, 41, 58, 60, 77, 82, 83 OVER THE RAMOS PAPER, RAMOS VIDEO, AND ORDING DEVICE

A. Petitioner Fails to Support Its Purported Combination of the Ramos Paper, Ramos Video, and Ording

1. Statements and motivations unrelated to semitransparency

Petitioner's obviousness theory depends not just on combining the Zlider of the Ramos Paper and Ramos Video with the device of Ording, but on doing so in such a way that most of the Zlider is transparent as shown on page 59 of the Petition:



Without this particular combination of the references, all grounds fail because, as explained below and recognized in the Institution Decision, the Ramos Paper and Ramos Video fail to meet the requirements of Limitations [1h] and [1i] of a second virtual display both (i) at a lesser depth than the first virtual display layer with the contents and (ii) at least a portion of which is at least partially translucent.

Petitioner's proffered obviousness rationale fails to support an RROD combination in which the Ramos Zlider is semitransparent or overlies the image. EX2012, ¶46. Petitioner offers three purported reasons to combine the Ramos Zlider with Ording, each of which fails to support the above-depicted combination.

To begin, Petitioner contends that "a POSITA would have naturally looked to prior art references, such as Ording, that also are directed to touch screen devices with user interfaces for user interaction and that have applications that necessitate precise parameter manipulation, as Ording provides." Pet. 30–31 (citing APPLE-1003, ¶61). Even accepting this for the sake of argument, this does not suggest any benefit to making Ramos's Zlider semitransparent. EX2012, ¶47.

Petitioner next contends that "[t]he combined disclosures of the Ramos Paper, Ramos Video, and Ording would have amply motivated a POSITA to implementation of a widget in a 'multifunctional device,' e.g., the device taught in Ording, which includes various software and hardware components and additionally provides semitransparent user input control devices, resulting in the Ramos Paper-

Ramos Video-Ording device (‘RROD’).” Pet., 31 (citing APPLE-1003, ¶63). Again, even accepting this for the sake of argument, this does not suggest any benefit to making Ramos’s Zlider semitransparent. EX2012, ¶48.

Notably, the critical RROD combination shown above is not included in this section of the Petition or otherwise tied to the three purported motivations. Pet., 31.

First, Petitioner asserts that “Ording offers foundational hardware (including processor and memory) for implementing a widget, ...” Pet., 31–32. This says nothing about semitransparency, and on its face would therefore not motivate the modification of Ramos Zlider to be semitransparent. EX2012, ¶49.

Second, Petitioner asserts that “Ording teaches the use of various applications configured to use a widget in the RROD,” and “that any one of these applications would benefit from the resulting widget.” Pet., 32. Yet again, this says nothing about semitransparency, and on its face would therefore not motivate the modification of Ramos Zlider to be semitransparent. EX2012, ¶51.

2. The single purported motivation related to semitransparency

Third, and most pertinently, Petitioner points out that “Ording further explicitly teaches providing ‘user interfaces that are intuitive and transparent,’ such as a ‘virtual click wheel’ that can be a ‘semitransparent object.’” Pet., 32–33 (citing APPLE-1006, [0028], [0045]; APPLE-1003, ¶66). From that, Petitioner asserts that “[a] POSITA would have recognized the benefits of transparent or semitransparent

UI objects that are minimally intrusive to the user.” Pet., 33 (citing APPLE-1003, ¶ 66). As the only purported reason to modify the Zlider to be semitransparent, the RROD combination cannot survive without this “motivation.” But this “motivation” cannot survive basic scrutiny.

To start, Petitioner’s and its expert’s attempt to conflate Ording’s use of “transparent” and “semitransparent” to divine some greater desire for optical transparency is blatantly misleading. Ording’s phrase about “user interfaces that are intuitive *and transparent*” is plainly not referring to transparency in an *optical* sense (*i.e.*, making something appear see-through). EX2012, ¶53. Instead, “intuitive and transparent” uses “transparent” in the sense of the user interface being readily understandable (consistent with its paring with “intuitive”). EX2012, ¶54; *see also* EX2010, 1 (“readily understood”). Ording’s paragraph [0028] is not concerned with optical transparency, but with increasing user satisfaction with portable devices by offering multifunctional operations on user interfaces based on finger input. EX2012, ¶54; EX1006 at [0028]. The passage in Ording from which Petitioner selectively quotes reads:

The various applications that may be executed on the device may use at least one common physical user-interface device, such as the touch screen. One or more functions of the touch screen as well as corresponding information displayed on the device may be adjusted and/or varied from one application to the next and/or within a respective

application. *In this way*, a common physical architecture (such as the *touch screen*) of the device may *support the variety of applications with user interfaces* that are *intuitive and transparent*.

EX1006, [0028]. There is no mention of optical transparency, rather, Ording is addressing user interfaces that are user-friendly and intuitive to navigate and operate.

EX2012, ¶55. The rest of Petitioner’s obviousness rationale fares no better.

a) Ording’s semitransparency is specific to Ording’s click wheel; semitransparency would hurt Ramos’ Zlider

However, that a click wheel might be semitransparent does not suggest that Ramos’ precision Zlider should be semitransparent. EX2012, ¶56. Ording’s discussion is not even so broad as to refer to all click wheels; rather, Ording addresses a click wheel that appears when used over a screen full of icons (*see* Ording’s FIG. 4B, inset below), and disappears when not in use. *See* EX1006, [0045] (“For a virtual click wheel, the click wheel may be either an opaque or semitransparent object that appears and disappears on the touch screen display in response to user interaction with the device.”); EX2012, ¶56. Given that Ording’s virtual click wheel appears temporarily and, by necessity, *over* an already crowded environment, it makes sense that Ording might make it semitransparent. EX2012, ¶57. Otherwise, Ording’s click wheel could obscure the very icons it is designed to permit a user to navigate. EX2012, ¶57; EX1006, [0045] (“A user may navigate among and interact with one or more graphical objects (henceforth referred to as

icons) displayed in the touch screen 112 by rotating the click wheel or by moving a point of contact with the click wheel (e.g., where the amount of movement of the point of contact is measured by its angular displacement with respect to a center point of the click wheel).”).

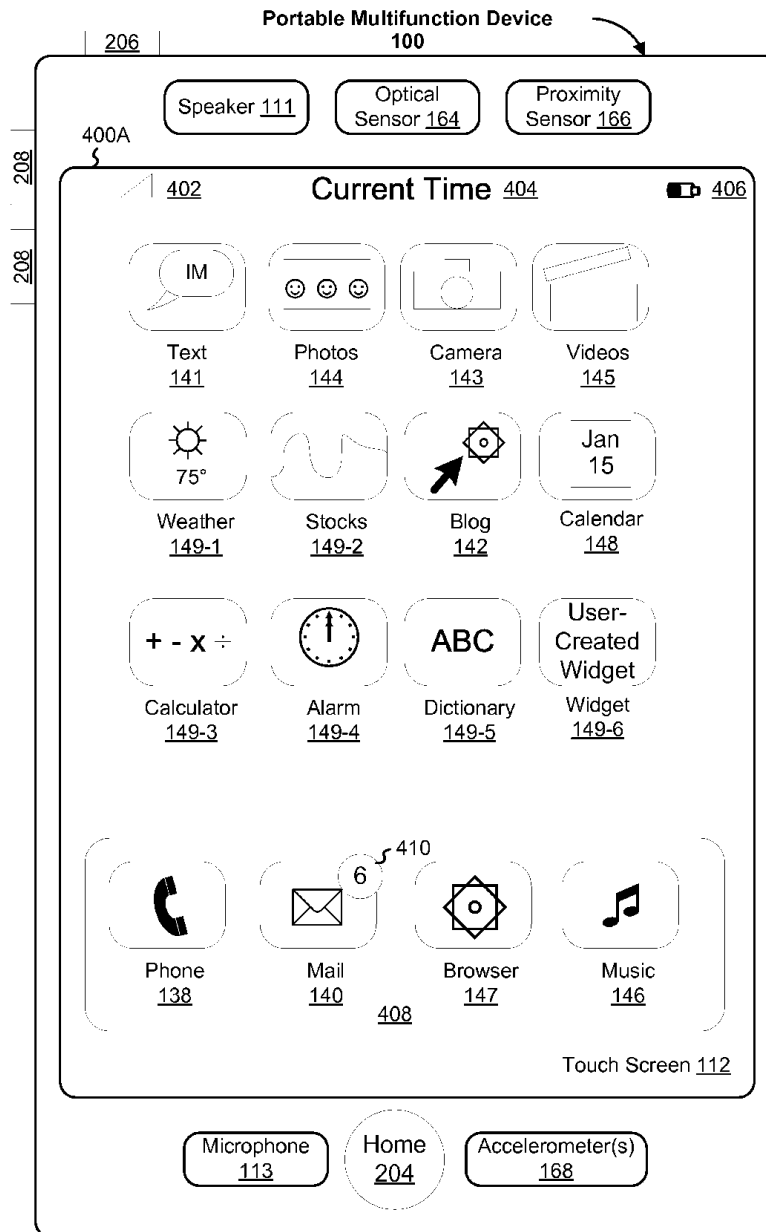


Figure 4A

In contrast, a POSITA would have understood that Ramos colors his Zlider’s working to ***contrast with*** the markings to ensure that the markings are readily visible to a user. EX2012, ¶58. If instead those markings were not readily visible, there would be no need for the markings at all. EX2012, ¶58; *see also* EX1005, 0:55 – 1:00 (“the Vernier adapts its grid spacing depending on the widget’s current precision”). A POSITA would thus have viewed this contrast as a necessary component of the Zlider, without which contrast it would be impossible for a user to gauge the degree of precision—*i.e.*, the purpose—of the Zlider. EX2012, ¶59.

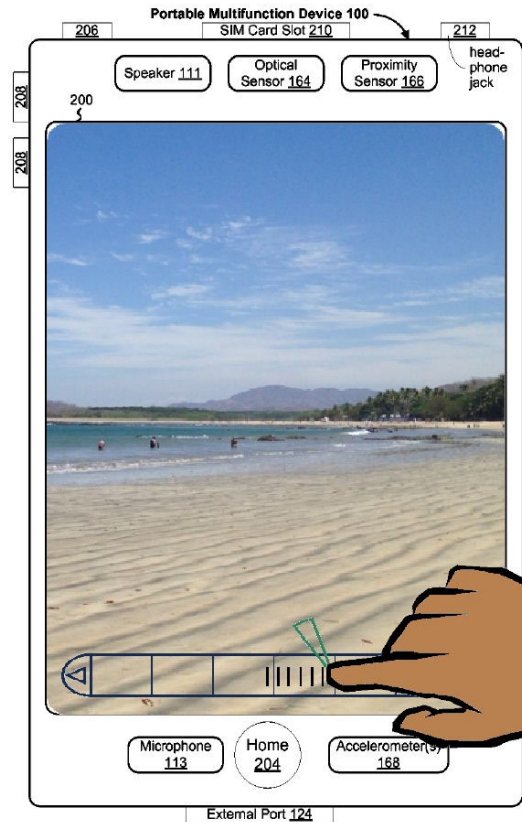
b) Petitioner’s purported motivation is not specific to Ramos Zlider, and would impermissibly render the Zlider unsuitable for its purpose

Despite these differences between Ording’s teachings and Ramos’ context, Petitioner marches ahead with a purported motivational statement, *i.e.*, that “[a] POSITA would have recognized the benefits of transparent or semitransparent UI objects that are minimally intrusive to the user.” Pet., 33 (citing APPLE-1003, ¶ 66). At the outset, this does not explain what the purported benefits are—instead merely contending that a POSITA would have recognized benefits. That is, on its face, conclusory and should accordingly be given no weight. *See Consolidated Trial Practice Guide*, November 2019, 40–41 (citing *Rohm & Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997) (“nothing in the Federal Rules of Evidence or Federal Circuit jurisprudence requires the fact finder to credit unsupported assertions

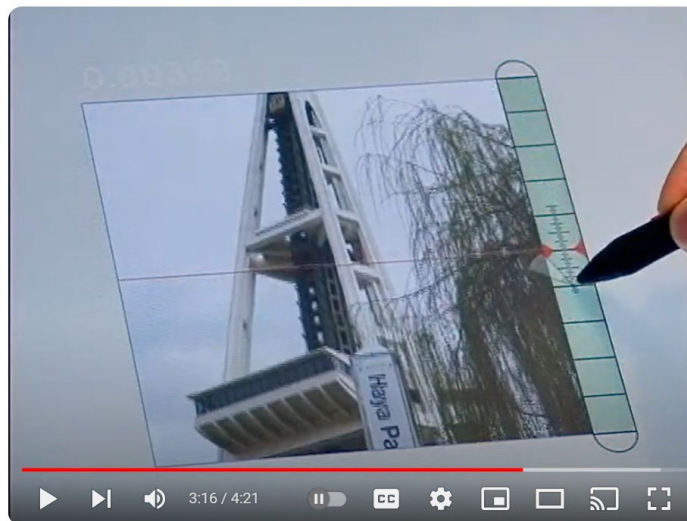
of an expert witness”).² Nor does Petitioner explain why this would have motivated a POSITA to modify *Ramos’ Zlider*. Even if Ramos’ Zlider were implemented in Ording’s device just as Ramos did in the Ramos Video, it would remain true that semitransparency could be beneficial to Ording’s *click wheel*. EX2012, ¶57. Petitioner’s assertions therefore present neither benefit to be achieved nor conflict to be resolved by *modifying Ramos’ Zlider* to be semitransparent. Indeed, the Ramos Paper contemplates and the Ramos Video shows the Zlider implemented on a touch screen with an application allowing for image manipulation. EX2012, ¶62. Yet neither the Petition nor Petitioner’s expert offer any explanation as to *why* the semitransparent Zlider as Petitioner envisions in the RROD combination would be less intrusive than the Zlider is in Ramos itself. EX2012, ¶62. Nor would it. *Id.*

Instead, in the RROD combination, the Zlider is noticeably *more intrusive* than in its original implementation in the Ramos Paper and Ramos Video. EX2012, ¶63. Specifically, in the RROD combination (inset below), the Zlider is pushed inward from the edge of the screen such that the Zlider overlaps—and directly interferes with the user’s perception of—the image itself. EX2012, ¶63.

² Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf?MURL=TrialPracticeGuideConsolidated>.



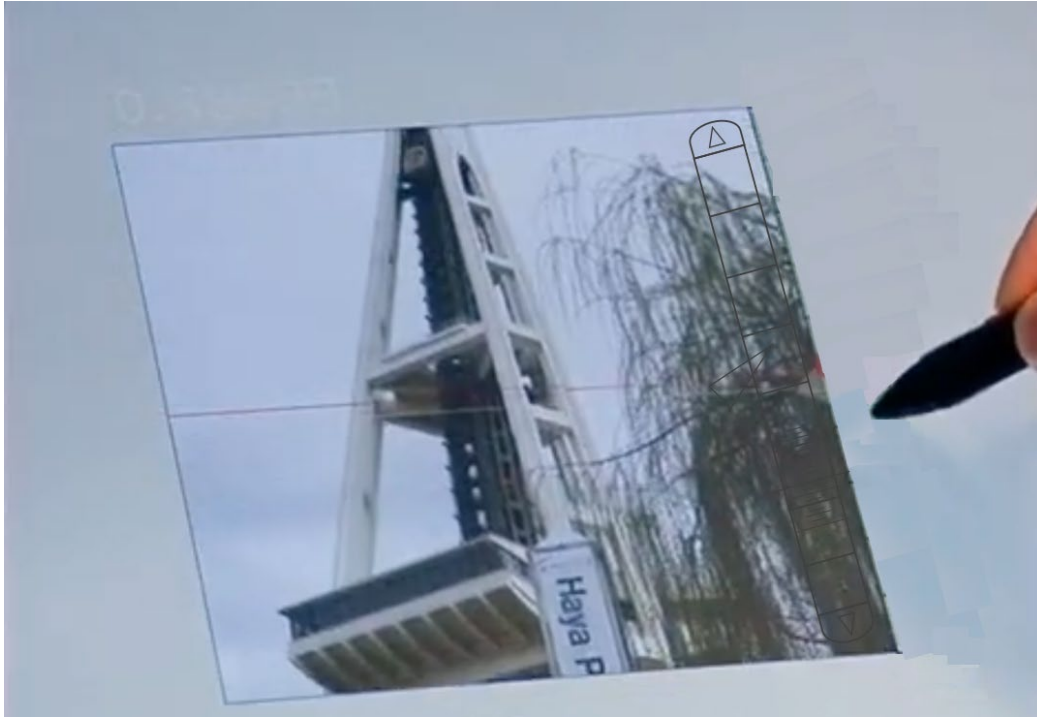
This overlap is wholly unnecessary. *Id.* As shown in the Ramos Video (inset below), disposing the Zlider at the edge of the display avoids overlap and maximizes the uninterrupted area in which to display the image. *Id.*



EX1005, 3:16.

But it gets worse still; the RROD combination doesn't just unnecessarily make the Zlider more intrusive, it also makes the Zlider unusable. EX2012, ¶65. Specifically, by making the Zlider semitransparent, the contrast between markings and background depends on the image and part thereof that happens to be displayed. EX2012, ¶65. As a result, while the Zlider may be visible *on the sand* in Petitioner's illustration of the RROD combination, zooming in such that the mountains are under the Zlider would make it difficult (if not impossible) to see the markings. EX2012, ¶66. The below images illustrate the difficulty where the image underlying the Zlider is almost the same color, making it impossible to see the markings or perceive the scale they serve to indicate. EX2012, ¶67.





At base, Ramos makes clear that its Vernier is an integral component of its Zlider that provides immediate feedback to users when granularity is adjusted. See EX1004, 1, 3. Yet Petition's modification would obscure the Vernier and thereby hamper a user's ability to view this immediate feedback and conduct high precision selection tasks. EX2012, ¶68.

In sum, Petitioner fails to offer a motivation to modify Ramos' Zlider in Ordering such that the Zlider is semitransparent as shown on page 59 of the Petition. EX2012, ¶69. Not only would none of Petitioner's proffered motivations have lead a POSITA to that result, but Petitioner fails to show even that its RROD combination would have made the Zlider less intrusive than it is in the Ramos Video itself. EX2012, ¶70. Further, a POSITA instead would have not made the combination as

asserted because it both would have needlessly interfered with a user’s perception of the underlying image—making the Zlider more intrusive than it is in the Ramos Video—but also would have needlessly interfered with the usability and function of the Zlider itself. EX2012, ¶71.

B. Limitations[1h], [1i], [1k], [1l], 3, 17, 19, [22d], [22f], [22g], 24, 36, 41, [58c], [58e], [58f], [58g], 60, 77, 82, 83: second virtual display layer that appears to have a lesser depth than the first virtual display layer

The Petition fails to show that its RROD combination would render obvious a “second virtual display layer that appears to have a lesser depth than the first virtual display layer.” Each of Limitations [1h], [1i], [1k], [1l], [22d], [22f], [22g], [58c], [58e], [58f], and [58g] and claims 3, 17, 19, 24, 36, 41, 60, 77, 82, and 83 recite “[a]/[the] second virtual display layer” Pet., vi–xvi. Petitioner’s mapping fails with respect to each of these. Accordingly, the Petition should be denied.

The challenged claims recite “a *first virtual display* layer including contents” and “a *second virtual display* layer that appears to have a *lesser depth* than the first virtual display layer” E.g., EX1001, Claim 1. The ’580 Patent explains that “virtual display layers [like the second virtual display layer] may be given the appearance of depth through the use of 3D depth cues. In the context of the present description, a 3D depth cue can be an effect, manipulation, transformation,

animation, or operation which gives a visual indication of simulated depth.”
EX1001, 68:25–30; EX2011, [00795].

1. Petitioner fails to show that the Ramos Paper and Ramos Video would suggest a second virtual display layer at a lesser depth

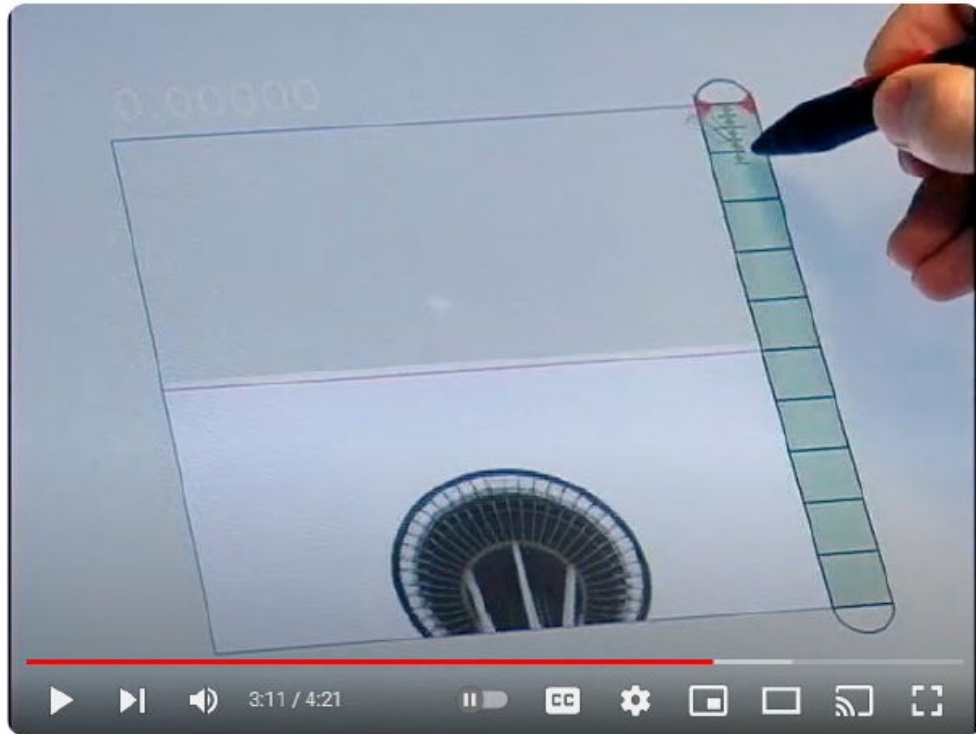
Petitioner claims that the “first virtual display layer” in the Ramos Paper and Ramos Video is the image “contents,” while the “second virtual display layer” contains the “‘pressure cursor’ of the Zlider” “along with the other components of the Zlider (*i.e.* the working area and Vernier).” Pet., 7, 13, 14, 39, 56; *see also*, EX2007, at 63:9–65:11. Petitioner then alleges that “the Zlider widget (*e.g.*, working area) [is] overlaying the content,” and the “Vernier is displayed over the image, so a POSITA would have understood the Vernier is in a second virtual display layer that appears to have lesser depth than the first virtual display layer in which the image content is located,” Pet., 13, 48, 54, 91. Petitioner is incorrect.

None of Petitioner’s examples disclose “a second virtual display layer that appears to have a lesser depth than the first virtual display layer.” EX2012, ¶77. Nor do Petitioner’s mappings show a second virtual layer overlaying the image content. EX2012, ¶77.



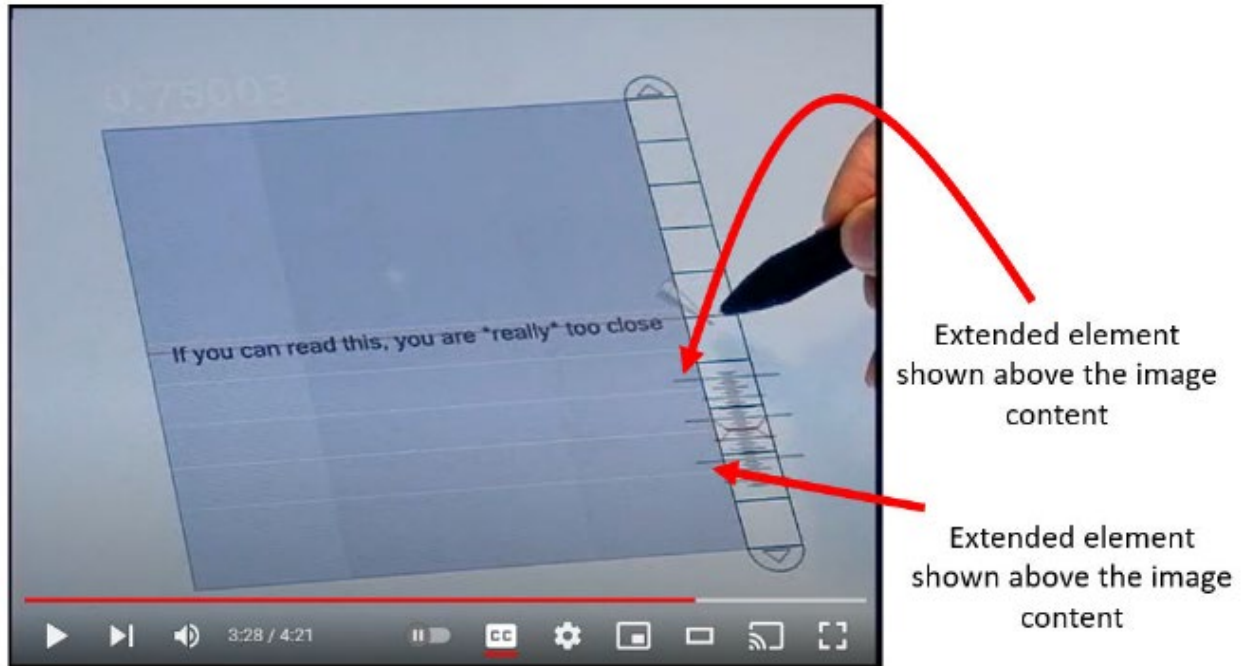
APPLE-1005, 3:22 (annotated)

As the Board found at institution, “[a]lthough Petitioner describes the video as showing ‘the Zlider widget (e.g., working area) overlaying the content,’ the two images being referenced in the Petition show the rectangular working area as being adjacent to the contents, not overlaying the contents.” D.I., 15, n.5 Thus, the contents and the working area are in the *same* virtual display layer, and *not in separate* display layers. EX2012, ¶79. This is confirmed in view of the plain demarcation between the working area and the adjacent image contents, as shown both in the image above and the image below (where the image is shown in lower portion of excerpt below beginning with the light gray color). EX2012, ¶79.



APPLE-1005, 3:11 (displaying the touch screen after a touch on the working area is detected (i.e., surpassing the hover threshold), as evidenced by the appearance of the Vernier on the working area)

Additionally, Petitioner incorrectly states that the “Vernier is displayed *over* the image” contents. As shown above, it is not. EX2012, ¶80. As shown below, the Vernier is displayed over the *working area* and not the image contents. See Pet., 54; EX2012, ¶81. As the Board noted in its Institution Decision, the Ramos working area is adjacent to the image content, “not overlaying the contents.” D.I., 15, n.5. And so, with Petitioner’s expert confirmed that Petitioner’s contention is that the Ramos working area, Vernier, and pressure cursor are all in the same layer, Petitioner fails to show that the Ramos Paper and Ramos video disclose more than one virtual display layer. EX2012, ¶81; see, e.g., Pet., 56; EX2007, 65:2-11.



APPLE-1005, 3:28 (annotated)

Petitioner should not be permitted to, on the one hand claim that the Vernier, pressure cursor, and working layer all share a common virtual layer, and on the other hand claim that one or more of these elements are in a separate virtual layer. Yet that is exactly what Petitioner attempts to do in contending that its RROD combination would have rendered obvious the “second virtual display layer that appears to have a lesser depth than the first virtual display layer” of Limitations [1h], [1i], [1k], [1l], [22d], [22f], [22g], [58c], [58e], [58f], and [58g], and claims 3, 17, 19, 24, 36, 41, 60, 77, 82, and 83. Fundamentally, Patent Owner should not be forced to play whack-a-mole with a collection of individual features and inconsistent positions. Nevertheless, if everything in the Ramos Paper and Ramos Video are in

the same virtual layer, then there is no second virtual display layer. EX2012, ¶83. If instead the pressure cursor is above the markings, and the markings are above content, then the alleged translucency of the pressure cursor cannot satisfy the requirement of Limitation [1i] of at least partial translucency in the second virtual display layer. EX2012, ¶83.

2. Petitioner fails to show that the RROD Combination would suggest a second virtual display layer at a lesser depth

In the Institution Decision, the Board ultimately pointed to the RROD combination shown on page 59 of the Petition as including the marking of a semitransparent Zlider in a second virtual display layer. D.I., 31 (citing Pet., 59). However, for at least the reasons explained in Section VI.A above, the Petition fails to support that RROD combination, and the RROD combination therefore cannot satisfy the requirements of Limitation [1.h].

C. Limitations [1i], [1l], [22d], [22g], [58c], [58g]: at least [a] portion of the second virtual display layer is at least partially translucent

Patent Owner does not agree that “the Zlider widget (*e.g.*, working area) [is] overlaying the content” or that the content area is in the first virtual display layer while the working area is in the second virtual display layer. Pet., 13, 56. But in the alternative, if the Petitioner’s positions are accepted by the Board, and specifically that the image content and the working area are overlapping (*i.e.*, not adjacent) and that the contents constitute the first virtual display layer and the working area

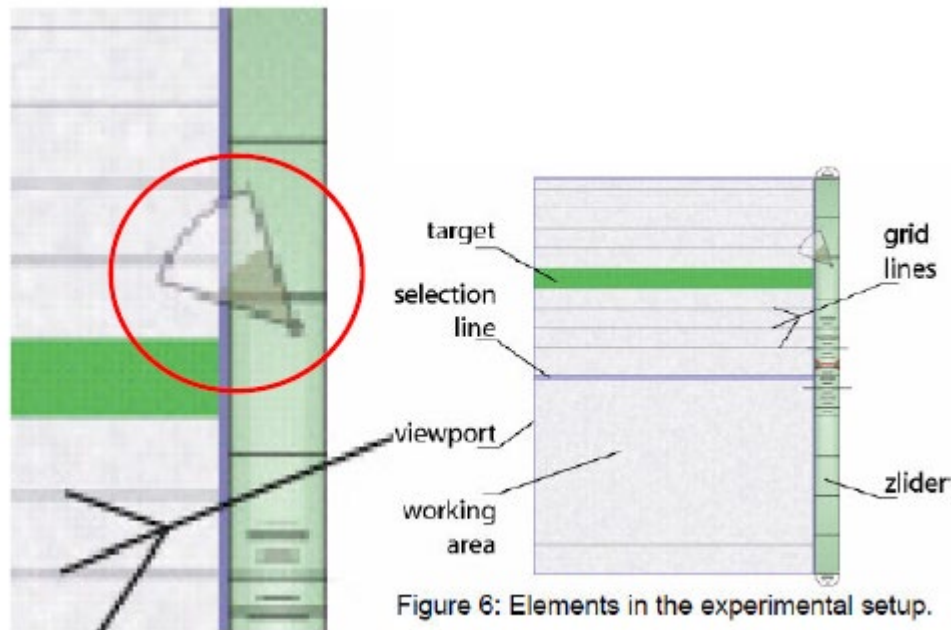
constitutes the second virtual display layer, Petitioner's invalidity mapping is still incorrect. Limitations [1i], [11], [22d], [22g], [58c], and [58g] require that at least a portion of the second virtual display layer is partially *translucent*. See Pet., vi, vii, x, xii, xiii. Petitioner offers two mappings to meet these Limitations, both of which are internally inconsistent and fail to meet the recited combination of these claim limitations even under the Petitioner's positions. EX2012, ¶86.

1. Petitioner's first mapping relies on a semitransparent element that is not in the second virtual display layer

Petitioner's first mapping fails to show a partially translucent second virtual display layer that appears to have a lesser depth than the first virtual display layer. EX2012, ¶87. In addition to the "plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer," Limitations [11], [22g], and [58g] also require that "at least [a] portion of the second virtual display layer is at least partially translucent."

For the "at least partially translucent" limitation, Petitioner points to the "semi-translucent" aspect of the pressure cursor in the Ramos Paper as meeting the "partially translucent" element in Limitations [1i], [11], [22d], [22g], [58c], and [58g]. Pet., 55. Specifically, the Petition points to Figure 6 (inset below, as excerpted and annotated by Petitioner) of the Ramos Paper showing the "pressure cursor" as "semi-translucent, as evidenced by the grid lines visible through the cursor." Pet., 55–56. Petitioner then cites to Figure 6 (inset below) of the Ramos

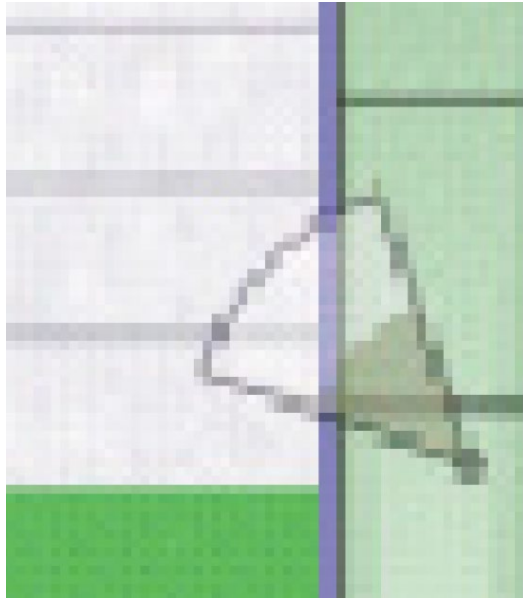
Paper to support its position that “the ‘pressure cursor’ of the Zlider is displayed in a second layer.” Pet., 56. Petitioner’s positions are untenable.



APPLE-1004, 127 (Figure 5-16) (annotated, zoomed in on left)

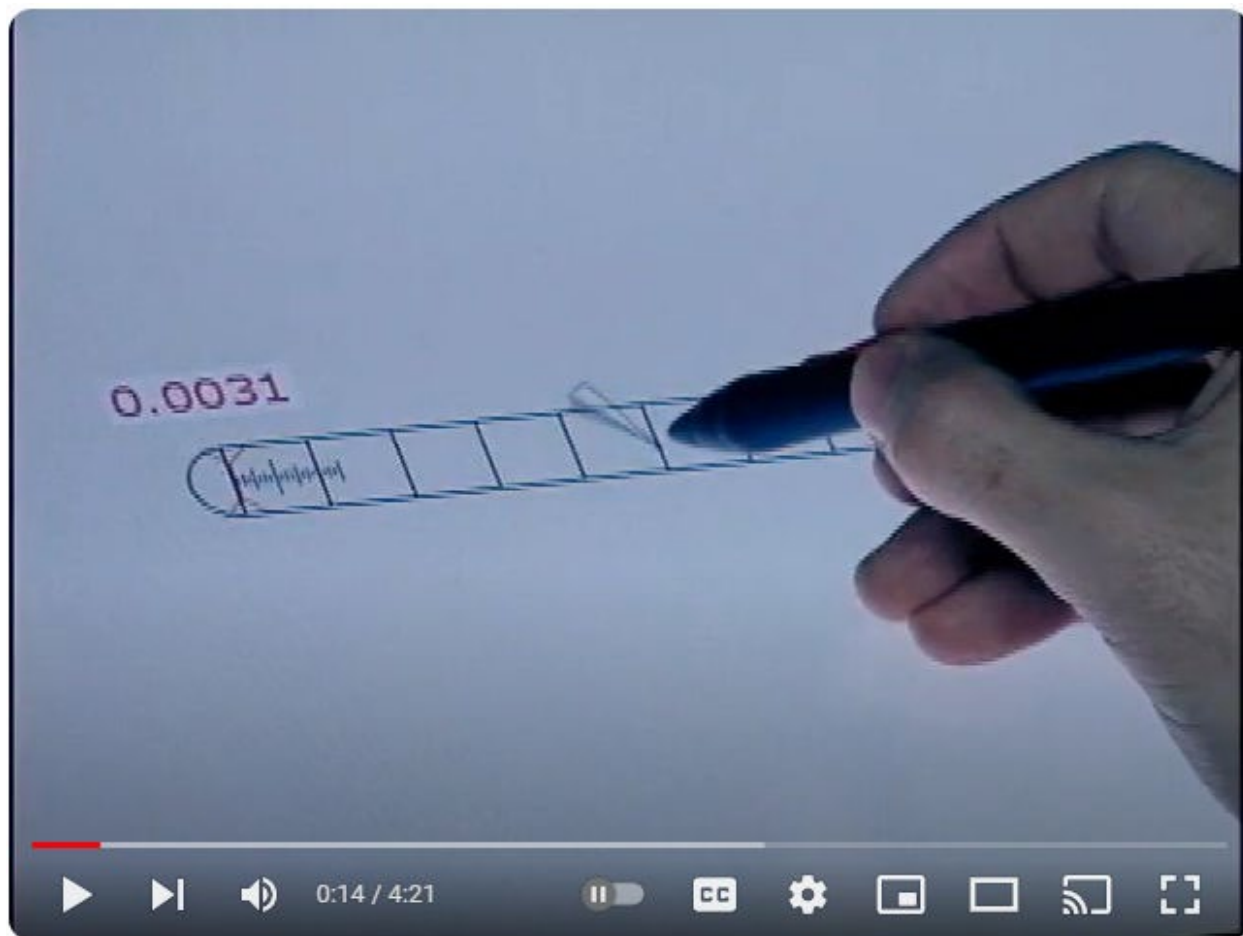
Any translucency of the pressure cursor cannot meet the requirement that “at least a portion of the second virtual display layer is at least partially translucent” for at least two reasons. First, because the pressure cursor is plainly shown to be *above* the Zlider and not in the second virtual display layer as described above in Section VI.B. See EX1004, Fig. 5; EX2012, ¶91. The translucency of the pressure cursor is seen over *both* the content area (which Petitioner identifies as being in a first virtual display layer) and the Zlider widget (which Petitioner identifies as being in a second virtual display layer). EX2012, ¶91; see Pet., 56. Because the pressure cursors is *translucent over both* inherently supports that the pressure cursor is

overlying both the content and the working area—and thus is in a separate virtual display layer from the contents and the Zlider. EX2012, ¶92.

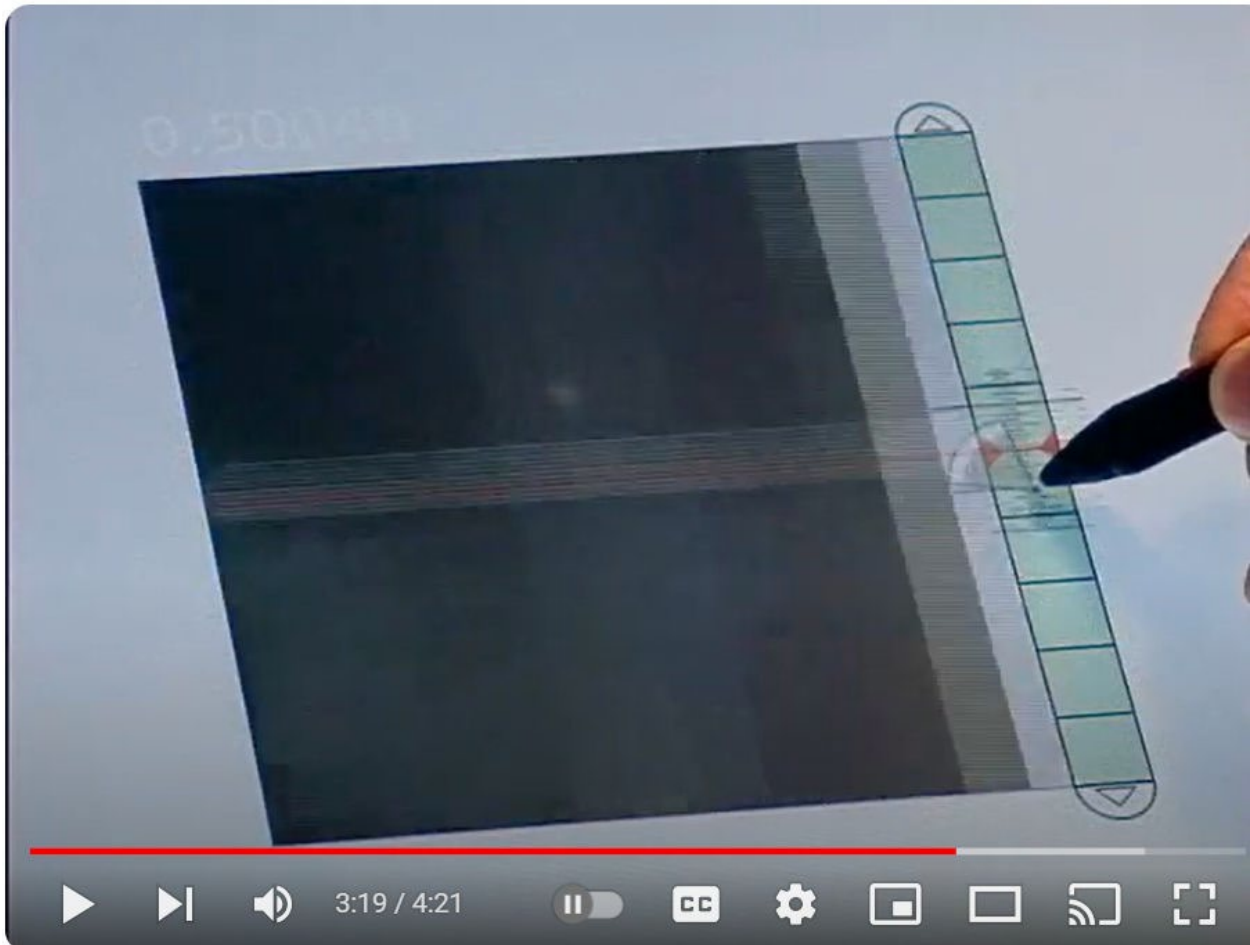


EX1004, Fig. 5 (excerpt).

The pressure cursor's translucency over both the content and the working areas can also be seen in the Ramos Video, in which the pressure cursor is translucent over both areas and plainly casts a shadow over both the Zlider and the adjacent content area just before the stylus contacts the screen. EX2012, ¶93; EX1005, 0:14 (cited at Pet., 16).



The same is true once the stylus contacts the screen, as can be seen in another part of the Ramos Video inset below. EX2012, ¶94.



EX1005, 3:19 (cited at Pet., 20). As shown—and consistent with Figure 6 of the Ramos Paper—the translucency of parts of the pressure cursor changes the appearance of both the markings of the Vernier and the underlying content—plainly indicating that the pressure cursor is in a different virtual display layer. EX2012, ¶95; *see also* EX1001, 68:7–11 (“a virtual display layer refers to a collection of

display elements which have all been assigned the same apparent depth within the 3D layered user interface”).³

Second, if the alleged markings⁴ are in the second virtual display layer, then the pressure cursor is *not* in the second virtual display layer, and Petitioner’s mapping fails to show “at least a portion of the second virtual display layer is at least partially translucent.” EX2012, ¶96. The only evidence that the “semi-translucen[cy]” of “the grid lines [being] visible through the cursor” offers is that the pressure cursor overlays the markings. EX2012, ¶97. Simply put, Limitations

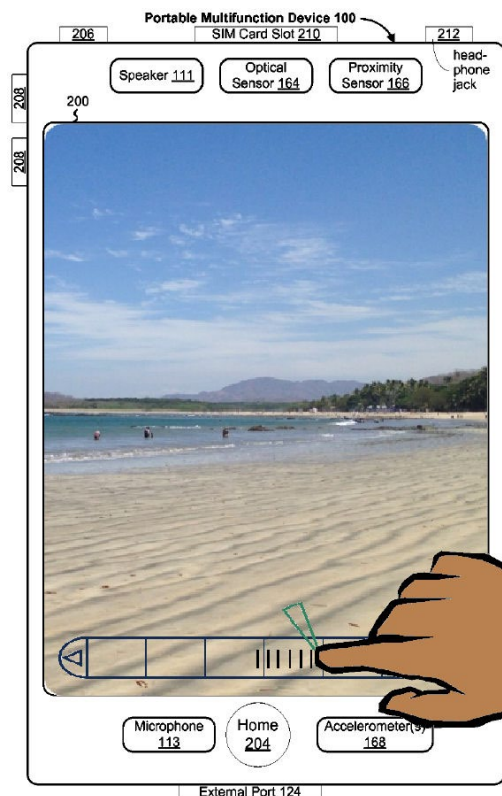
³ Petitioner also identifies an aspect of a different, color-picker widget in the Ramos Video as showing alleged translucency above the content. Pet., 56–57. However, the Petition fails to explain any reason it would have been obvious to include that in Ramos’ Zlider, much less in a way that would position that alleged translucency in a second virtual display layer as required by Limitations [1i], [22d], and [58c]. EX2012, n.2.

⁴ Petitioner implies, without directly alleging, that the Ramos Video displays the Vernier’s extended markings in a “semi-transparent manner.” Pet., 26. But the Ramos Video does no such thing; the extended markings are shown as opaque. EX2012, n.3; *see* Pet., 29 (EX1005, 3:19). Further, Petitioner’s actual mapping does not point to these extended markings. *See* Pet., 55–58; EX2012, n.3.

[1h]–[1i], [22d], and [58c] each require the markings and the translucency to both be in the same virtual display layer, and Petitioner’s first mapping simply does not disclose or suggest this. EX2012, ¶97.

2. *Petitioner’s second mapping fails to show semitransparency in a second virtual display layer*

Petitioner’s second mapping also fails to render obvious translucency in second virtual display layer at a lesser depth than the first layer. EX2012, ¶98. Petitioner contends it was obvious for a POSITA to modify Ramos’ Zlider with the “semitransparent object” in Ording, and shows a modified version of Ording with the “semitransparent” Zlider (inset below). Pet., 57–59; EX2012, ¶93.



Pet., 59.

Petitioner fails to show—much less assert—that the alleged markings (*i.e.*, Ramos’ Vernier) in its RROD combination, would be in a second virtual display layer. EX2012, ¶99; *see also* Pet., 58–59 (addressing only semitransparency). Thus, Petitioner’s second mapping is—at best—incomplete in that it focuses on a single feature (translucency) of Limitations [1i], [22d], and [58c] to the exclusion of all others, leaving Patent Owner and the Board to guess at the extent to which the combination may impact the remainder of Petitioner’s mappings, ultimately resulting in a second mapping that is insufficient as a matter of law. EX2012, ¶100. While the Board preliminarily disagreed (D.I., 30–31), Petitioner’s mappings for the rest of the limitations related to markings, layers, and depth (*e.g.*, Limitations [1h], [1i], [1k], and [1l]) do not address this RROD combination, much less explain how it meets the various requirements other than translucency. *Compare* Pet., 59 (addressing RROD of page 59) *with* Pet., 49–57, 60–72 (not addressing RROD of page 59); EX2012, ¶101. As such, it is left to Patent Owner and the Board to decipher which Ramos element is purportedly in which alleged virtual display layer. *See, e.g.*, D.I., 31 (addressing only that “a portion of a beach is visible” thought the Zlider widget with Vernier markings, not whether the Zlider widget or Vernier markings are in a second virtual display layer at a lesser depth than a first virtual display layer). For this reason alone, Petitioner’s second mapping should also fail.

Moreover, for the reasons explained in Section VI.A above, the Petition fails to adequately support the RROD combination. *See also* Pet., 58 (parroting same ‘motivation’). Absent that RROD combination, the Petition fails to show the claimed translucency of, for example, Limitations [1i] and [1l]. D.I., 29–30. Because the RROD combination fails, the Petition thus fails to show obviousness of translucency in the second virtual display layer.

The Petition therefore fails to show that the RROD combination would disclose or suggest any of Limitations [1i], [1l], [22d], [22g], [58c], and [58g].

D. Limitations 1[l], 22[g], 58[f], 82 and 83: perform a zoom operation on the at least portion of the contents of the first virtual display layer without performing [the]/[any] zoom operation on the plurality of markings in the second virtual display layer

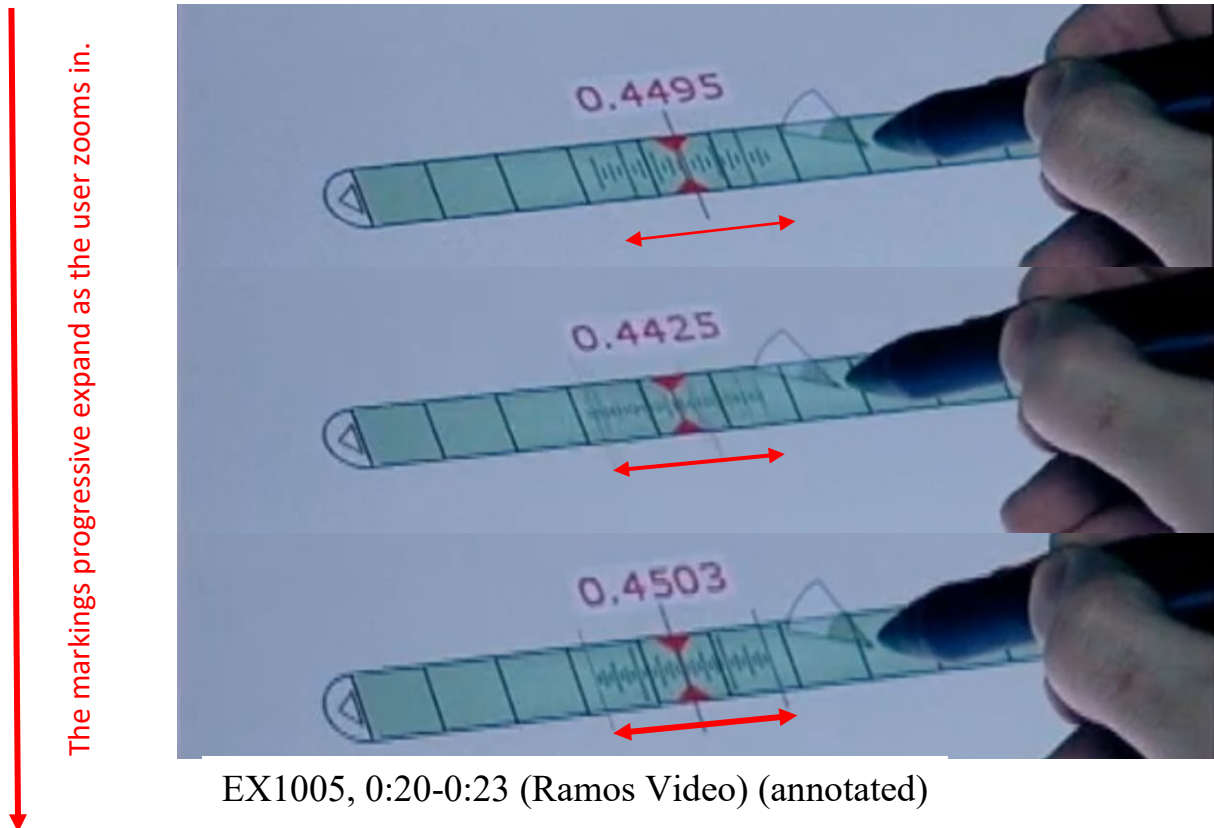
Petitioner fails to show that its RROD combination suggests zooming in on at least a portion of the contents “without performing any zoom operation on the plurality of markings.” Limitations [1l], [22g], and [58f] and claims 82 and 83 all recite “perform a zoom operation on the at least portion of the contents of the first virtual display layer without performing [the]/[any] zoom operation on the plurality of markings in the second virtual display layer” Pet., vi–xvi. Accordingly, Petitioner’s invalidity mapping fails, and the Petition should be denied.

Petitioner states that the “Vernier comprises a plurality of markings.” Pet., 50. Petitioner then asserts that the zoom operation is not performed on the plurality

of markings when a zoom operation is performed on at least some contents in the first virtual display layer for at least two reasons. Pet., 68–69. First, Petitioner claims that while the “grid spacing is adapted according to the current precision level” the plurality of markings are not magnified because “they remain the same thickness.” Pet., 69. Second, according to the Petitioner, “[w]hile the scale of the Vernier *does* influence the magnification level (a zoom operation) applied to the content,” “the zoom operation applied to the content is not applied to the Vernier.” Pet., 69. Petitioner claims this because “the pressure applied to the working area determines the Vernier’s scale factors,” which is associated with “‘precision’ and ‘granularity’” and not magnification level. Pet., 70.

Petitioner’s position is incorrect. EX2012, ¶110. Petitioner acknowledges that the plurality of markings change as a function of a zoom operation on the content – “[t]he Ramos Paper explains that ‘the Vernier in our Zlider adapts its grid spacing depending on the widget’s current scale factor.’” Pet., 66. In other words “when a user touches the markings and presses down (changing the pressure applied to the touch screen), the scale factor for zoom changes, causing the one or more markings to move in the second virtual display layer.” Pet., 66. “In this way, the markings in the Vernier displayed in the second virtual display layer are moved as a function of the pressure applied in the touch movement. Pet., 66–67. But the zoom operation

occurs on the plurality of markings when the pressure is applied, as seen in the screenshots from the Ramos Video. EX2012, ¶111.



APPLE-1005, 0:20–0:23.

As shown above, as the user performs a zoom operation on the working area the zoom operation also occurs on the plurality of markings as seen in the video by the plurality of markings expanding—*i.e.*, appearing to get closer to the user—as can be seen when viewing the video. EX2012, ¶112.

Petitioner confirms that the plurality of markings change as the zoom operation is performed on the content, but asserts that this is due to “precision” levels changing rather than zooming. EX2012, ¶113. Specifically, Petitioner contends

“[t]he Ramos Paper also confirms that ‘the Vernier in our Zlider adapts its grid spacing [plurality of markings] depending on the widget’s current scale factor.’”

Pet., 69. But this is just semantics.

The Ramos Video shows its Zlider zooming in on its marking as a portion of image is enlarged (zoomed), that it “adapts its grid spacing” according to the zoom is just another way of saying that it also zooms in on the grid spacing. EX2012, ¶114. The plain meaning of zoom in this context is to enlarge an image. EX2009 (Webster’s Dictionary). And that is precisely what the Ramos Video shows: “The Zlider widget behaves like a regular selector with the difference that users can while dragging or sliding explicitly adjust *the precision at which they interact or zoom* by changing the amount of pressure they apply with the input device.” EX1005, 0:14–0:27; EX1005, 0:20–23 (Ramos Video) (Annotated), *infra*; EX2012, ¶115. This much is apparent in the portion of the Ramos Video from which screen shots are annotated above, in which, as the zoom operation is performed on the image, the spacing between Vernier markings increases (the markings get larger), until another set of intermediate markings appears, and the spacing between the markings continue to increase. EX1005, 0:20–0:23 (Ramos Video) (Annotated), *infra*. Thus, the Ramos Video makes clear that what is occurring with the Vernier and Zlider is a “zoom,” despite Petitioner’s attempt to recast it as something else. *See* EX1005, 0:20–0:23 (Ramos Video) (Annotated), *infra*; EX2012, ¶117.

Petitioner thus fails to show that its RROD combination would suggest any of Limitations [11], [22g], and [58f], or claims 82 and 83. EX2012, ¶118. RROD therefore does not render obvious “perform[ing] a zoom operation on the at least portion of the contents of the first virtual display layer without performing [the]/[any] zoom operation on the plurality of markings in the second virtual display layer” EX2012, ¶118.

E. Limitations [1h], [22d], [58c]: [when/in response to] an aspect of the touch [is/being] detected to surpass a threshold, display[ing], via the touch screen, a plurality of markings in a second virtual display layer

Limitation [1h] recites: “when an aspect of the touch is detected to surpass a threshold, display, via the touch screen, a plurality of markings in a second virtual display layer” Limitations [22d] and [58c] similarly recite: “in response to an aspect of the touch being detected to surpass a threshold, display, via the touch screen, a plurality of markings in a second virtual display layer” For claim 1, “the touch” finds its antecedent in Limitation [1g]: “detect, via the touch screen, at least a portion of touch on the least one user interface element.” *See also* Limitations [22c], [58b]. Because “touch” is not the same as “no touch” or “hover,” Petitioner’s mappings fail and the Petition should be denied.

1. A “touch” is a touch; hovering is not a “touch”

For Limitation [1g], Petitioner assumes there is no difference between a stylus not touching, but hovering within a threshold distance of the touch screen and touching (*i.e.* actually contacting) the screen. Petitioner is wrong.

First, Petitioner asserts that the “[t]he Ramos Video further shows several examples of the device detecting *at least a portion of a touch* on the working area (at least one user interface element) displayed on the touch screen, as evidenced by the ‘before’ and ‘after’ of the displays, shown below.” Pet., 43 (citing EX1005). The Petition then shows a number of screenshots from the Ramos Video, without pointing out that the display of the Vernier is responsive to the stylus hovering within a threshold distance of the screen, ***not*** to the stylus actually touching the screen. The Petition next asserts—without explanation—that a “POSITA would have understood that a touch in the Ramos Paper and Ramos Video includes both contact with the touch screen *and meeting a threshold proximity* [without contact] between the stylus and the touch screen.” Pet., 47 (citing EX1003, ¶80). But that assertion misses the mark and contradicts the disclosure of the ’580 Patent. EX2012, ¶122.

The only support Petitioner cites for the conclusion that merely getting close could be a “touch” is a misquoted passage in the ’580 Patent discussing “touch state,” not “touch” itself. EX2012, ¶123. Petitioner contends that “the ’580 Patent explains that ‘contact pressure level may be represented by a touch state,’ which ‘refers to a

predefined subset of the range of measurable contact pressures,’ where the ‘lowest touch state may require some form of proximity,’” and therefore the “RROD teaches and/or renders obvious detecting at least a portion of a touch (e.g., proximity).” Pet., 47–48 (quoting EX1001, 17:22–36). But “touch” is not the same as “no touch” or a “hover.”

Further, interpreting “touch” to include a hover or lack of touch (*i.e.*, “proximity”) would not make sense in the context of the Challenged Claims (and those that depend therefrom), which recite: “detect[ing], via the touch screen, at least a portion of touch on the least one user interface element.” EX1001, Claim 1. Dr. Cockburn, expert witness for the Petitioner, acknowledges that a touch includes a temporal component. *See* EX2007, 23:13–14 (“I would agree that ‘touch’ can have a temporal component.”); 38:3–6 (“From the user’s perspective and from physics perspective, there will be a temporal component of aspects of the touch.”) Dr. Cockburn also acknowledges that a touch includes a physical component. *See* EX2007, 27:10–13. The ’580 Patent even provides that “a ***touch*** event refers to an event in which an implement of interaction comes ***into contact*** with an interaction surface.” EX1001, 52:48–50.

2. *Ramos Paper and Ramos Video display their Vernier in response to a hover—not touch*

For Limitation [1h], the Petition contends that “when an aspect of the touch is detected to surpass a threshold, display[ing], via the touch screen, a plurality of markings in a second virtual display layer” is met by Ramos Paper and Ramos Video’s display of their Vernier. Pet., 50. But Petitioner glosses over the fact that the Zlider in the Ramos Paper and Ramos Video does **not** display its Vernier in response to an aspect of a touch, but instead in response to a proximity threshold as shown below and does not articulate any reason or motivation to change that foundational element of the Ramos Paper and Ramos Video. See e.g., EX1005, 3:09.

First, Petitioner recognizes that the Ramos Paper and Ramos Video suggest the use of a threshold associated with a hover state to determine when the hover surpasses “a threshold (*i.e.*, the signals associated with the hover threshold described further below) when using the Zlider, the Vernier is displayed on the touchscreen.” Pet., 50 (citing EX1003, ¶85; EX1005, 0:14, 3:10–3:11). Petitioner’s expert concurs. EX1003, ¶85 (citing EX1004, FIG. 5) (“POSITA would have understood or found obvious that the tracking state is activated when signals from the stylus exceed a threshold (*i.e.*, the stylus is ***close enough to the touch surface*** to be registered as movement ***near the surface***)”). Thus, Ramos Paper and Ramos Video display their Vernier in response to the stylus coming near the display, **not** in response to the stylus actually ***touching*** the display. EX2012, ¶129.

Second, despite arguing generally that it would have been obvious in view of Ording to add a duration threshold to the Ramos Paper and Ramos Video, Petitioner never articulates any theory (much less motivation) to modify the Ramos references to display the Vernier in response to touch rather than mere proximity to / hover near the touch screen. *See* Pet., 49–50; EX2012, ¶130. Thus, even if the Ramos Paper and/or Ramos Video were modified to include a duration threshold (purportedly to avoid inadvertent activations), the technology shown in the Ramos Paper and Ramos Video would still display the Vernier in response to a hover, ***not*** “when [in response to] an aspect of ***the touch*** is [being] detected to surpass a threshold.” EX2012, ¶131.

3. The Board overlooked that the Petition relies exclusively on Ramos’ hover threshold to meet the claimed threshold

The Board preliminarily found that “Petitioner relies on not only the interaction of the stylus and the Zlider widget shown in the Ramos Video but also on Ording’s disclosure of touch contact of a user’s finger or stylus with the device.” D.I., 27. In doing so, the Board quoted page 49 of the Petition: “As discussed above for [1.g], at least a portion of a touch includes contact on the touch screen (e.g., with a stylus or a finger), as Ording teaches, and meeting a threshold (e.g., a threshold proximity (hover threshold) between the stylus and the touch screen), as ***Ramos Paper and Ramos Video*** teach and/or suggest.” D.I., 27. As quoted, the Petition expressly relies on Ramos’ hover threshold. As such, whether Ording also teaches “touch contact” is irrelevant because the Petition relies on the hover threshold.

F. Limitations [1l], [22g], and [58f]–[58g]: the at least portion of the second virtual display layer is at least partially translucent so that *a result of* the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer

The Petition also fails to map the prior art to the claim limitations with the requisite particularity. Limitation [1l] recites “perform a zoom operation on the at least portion of the contents of the first virtual display layer without performing the zoom operation on the plurality of markings in the second virtual display layer, where the zoom operation correlates with the movement of the markings in the second virtual display layer, and the at least portion of the second virtual display layer is at least partially translucent so that a result of the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” Pet., vii. Limitations [22g] and [58g] recite similar features. *See* Pet., x, xiii. The Petition should be denied because it fails to explain with particularity how Limitations [1l], [22g], and [58f]–[58g] are met.

1. The Petition fails to address Limitation [1l] with particularity

The Petition does not include a section explicitly addressed to Limitation [1l]. *Compare* Pet., vi–vii (Limitations [1pre], [1a]–[1l]) *with* Pet., 34 (Limitation [1pre]), 35 (Limitation [1a]), 36 (Limitation [1b]), 37 (Limitations [1c], [1d]), 39 (Limitation [1e]), 41 (Limitation [1f]), 43 (Limitation [1g]), 49 (Limitation [1h]), 59 (Limitation

[1i]), 62 (Limitation [1j]), 68 (Limitation [1k]), 72 (Limitation [2]), 68–72 (no apparent Limitation [1l]). The Petition includes headings for each Limitation in claim 1 except for Limitation [1l], forcing Patent Owner and the Board to surmise as to what, if anything, in Petitioner’s mapping is intended to read on Limitation [1l].

And, this failing infects Petitioner’s grounds for all challenged claims because the mapping of Limitations [22g] and [58g]—which recite features similar to those of Limitation [1l]—simply reference Limitation [1k]. *See* Pet., 89 (for Limitation [22g], solely referencing Limitation [1k]), 92 (for Limitation [58g], solely referencing Limitation [1k]). Thus, the failings in Petitioner’s mapping of Limitations [22g] and [58g] is even worse than those of Limitation [1l] in that the latter mapping references Limitation [1k], which does not include similar features to Limitations [22g] and [58g]. Likewise, and deepening the plain failure of proof, Petitioner’s mapping of Limitation [58f] references Limitation [1j], which does not include similar features to Limitation [58f]. *See* Pet., 92 (for Limitation [58f], solely referencing Limitation [1j]).

Petitioner’s failure to appropriately map the prior art against Limitations [1l], [22g], and [58f]–[58g] infects all grounds for all challenged claims, and is—alone—a sufficient reason to deny the Petition.

2. *Petitioner’s mapping fails to address all claim elements*

Even if it is assumed that Petitioner’s mapping against Limitations [1l], [22g], and [58f]–[58g] is not insufficient, Petitioner’s mapping cannot be reconciled with the claims. For example, the beginning of Petitioner’s mapping to Limitation [1k] looks to address Limitation [1l]. *See also* Pet., 68 (addressing “movement of the plurality of markings” based on the zoom scale factor). Likewise, latter parts of Petitioner’s mapping to Limitation [1k] appear to address parts of Limitation [1l]. *See* Pet., 68–69 (addressing a “magnification function,” “zoom operation applied to the content is not applied to the Vernier”); *see also*, 68–72.

However, nowhere does Petitioner’s mapping to Limitation [1k] address the second half of Limitation [1l]: “and the at least portion of the second virtual display layer is at least partially translucent so that a result of the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” *Compare* Pet., vii (Limitation [1l]) *with* Pet., 68–72. Similar features are found in Limitations [1l], [22g], and [58g] and, as noted above, Petitioner’s mappings for Limitations [22g] and [58g] both rely on the mapping for Limitation [1k]. Consequently, Petitioner’s failure to address this feature renders all grounds deficient on their face for at least this additional reason.

The Board preliminarily disagreed, distilling the issue down to whether the Petition sufficiently addressed what the Board labeled Limitation [11(iii)]. D.I., 33-34. Specifically, the Institution Decision explains the view that the Petition addresses parts of Limitation [11(iii)] in the context of the Ramos Paper and the Ramos Zlider, and that the rest of Limitation [11(iii)] “uses antecedent basis to refer to the translucency of the second virtual display layer through which the contents are visible (limitation [1i]).” D.I., 34. The Board’s preliminary finding was mistaken for each of two independent reasons.

First, there is no antecedent-basis exception to Petitioner’s responsibility to articulate their theory and to fully articulate how *the asserted RROD combination* meets every limitation of the challenged claims. The Petition here explicitly says it is addressing Limitation [1k] instead of Limitation [11]. Pet., 68-72. Even in what it says under its Limitation [1k] heading, the Petition does not refer back to its mapping of Limitation [1i]; nor does it depict the purported RROD combination from page 59 of the Petition. *Id.* And, even if the Petition had referenced its mapping of Limitation [1i], that section also does not include or depict the purported RROD combination with the alleged translucency. *See* Pet., 59-61. And so, if Patent Owner and the Board were to assume instead that the semitransparent Zlider at the end of the Petitioner’s mapping of Limitation [1h] (Pet., 49-59) was intended to address the “translucent” feature of Limitations [1i] and [11], doing so would require looking

past *two layers* of what would then also have to be assumed to be incorrect headings in the Petition's own mapping of its text to the claims.

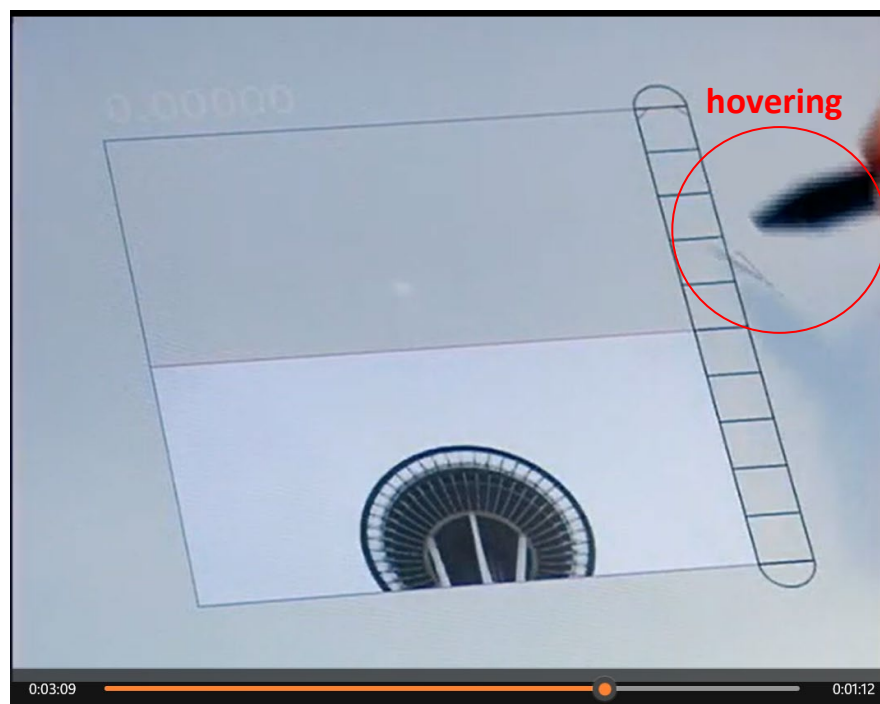
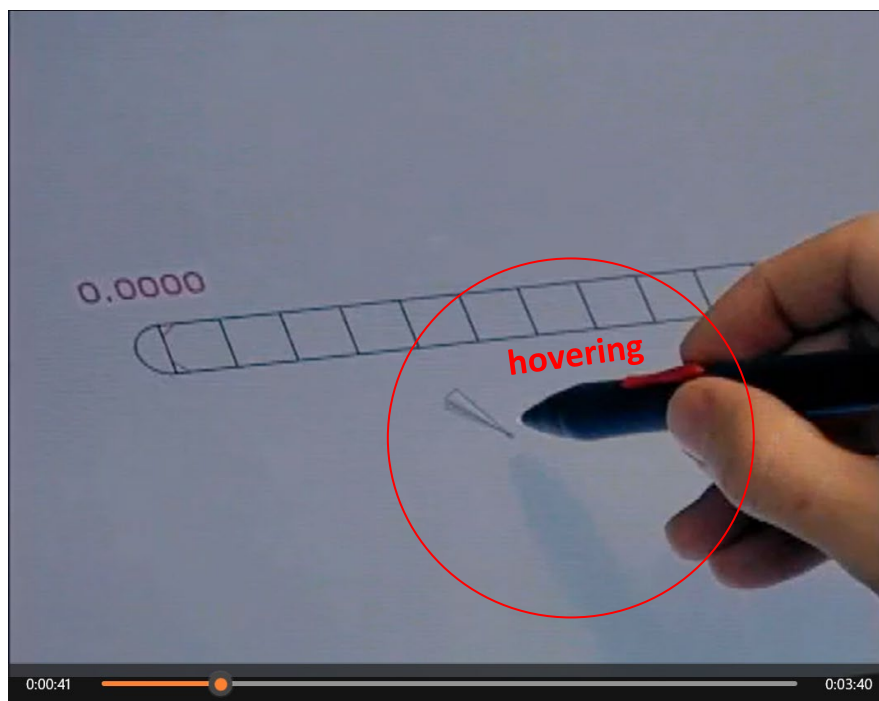
Second, and as noted in Section VI.C.2 above, even *if* these nested assumptions are to be made such that the RROD combination shown on page 59 of the Petition is to be evaluated as a silver bullet to unify the Petition's various mappings, the Petition's mapping of that RROD combination is still incomplete. For example, the Petition does not address how the Zlider, when implemented in Ording's device, would meet the rest of the limitations related to markings, layers, and depth (*e.g.*, Limitations [1h], [1i], [1k], and [1l]) do not address this RROD combination, much less explain how it meets the various requirements other than translucency. *Compare* Pet., 59 (addressing RROD of page 59) *with* Pet., 49–57, 60–72 (not addressing RROD of page 59).

G. Claims 29, 65: wherein the touch and the another touch are detected to be part of a single continuous gesture with constant contact with the electronic device

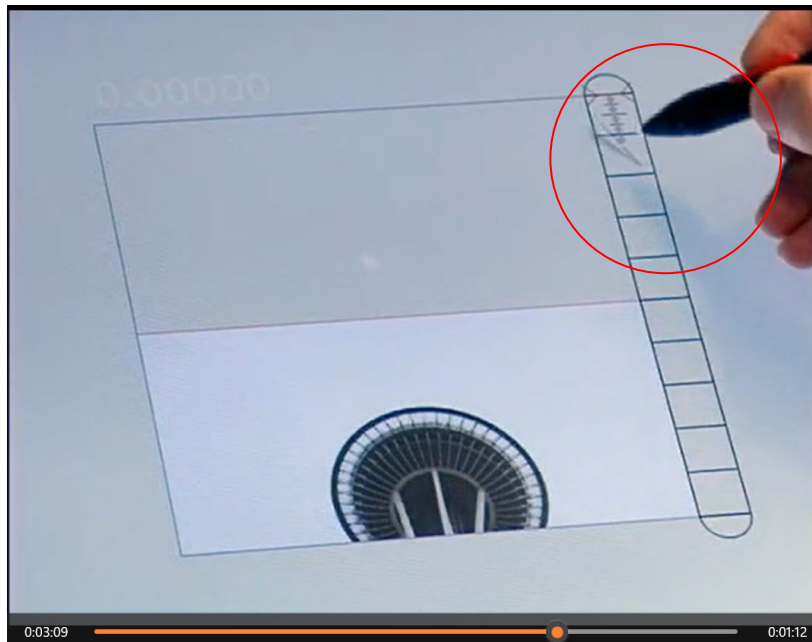
Dependent claims 29 and 65 both recite “the touch and the another touch are detected to be part of a single continuous gesture with constant contact with the electronic device.” Pet., vi–xvi. Petitioner's mapping fails because the Petitioner cannot show that the RROD prior art references disclose two independent touches that are detected to be a part of a *single continuous* gesture in constant contact with the electronic device. EX2012, ¶132. As such, the Petition should be denied.

Petitioner maps the single continuous gesture to “a single continuous touch movement,” with the first touch to “the user moving a stylus within proximity of the touch screen (causing display of the Vernier on the working area),” and the second touch to when the stylus “continue[s] moving on the touchscreen along the Zlider and during the continuous touch movement[.]” Pet., 80. But this constitutes neither a *single* continuous gesture nor two *touches*. EX2012, ¶133.

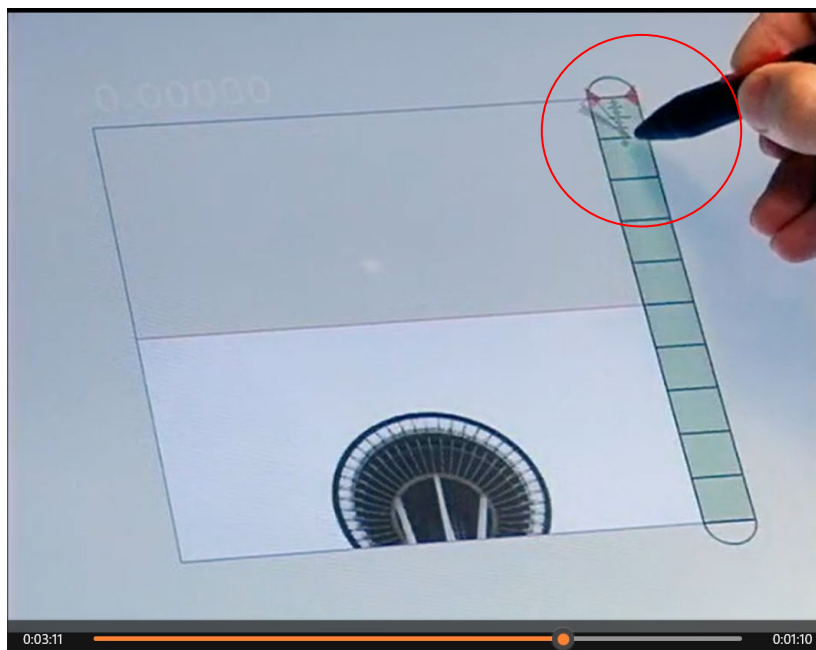
As previously discussed, hovering—“moving a stylus within proximity of the touch screen”—is not a touch as discussed in Section VI.E.1 above, so it plainly cannot constitute one of the two touches. EX2012, ¶134. And, even if hovering constituted a touch in this context, which it does not, it would still not be a part of a single continuous gesture when the second touch according to the Petitioner is the stylus touching the working area and triggering the Vernier. EX2012, ¶135. This is because the stylus is detected when it is hovering near the working area without coming into contact with the touch screen, and this type of gesture alone (*i.e.*, a hand hovering above the touch screen) constitutes a *separate and distinct* gesture from moving a stylus into contact with the touch screen. EX2012, ¶136.



Still hovering, but the grid marks have appeared,
meaning stylus is close enough to be detected.



No longer hovering; stylus made contact activating
the working area (green background) and
turning the needle red.



As shown above, when the user brings the stylus to make contact with the working area, thus triggering the Vernier, that movement constitutes a *second* gesture. EX2012, ¶137. Furthermore, when the user moves the stylus on the x-axis of the Zlider to scroll the content that movement of the stylus constitutes a *third* gesture. EX2012, ¶138. Finally, pressing the stylus on the touch screen to increase or decrease the zoom operation constitutes a *fourth* gesture. EX2012, ¶139. Thus, none of these movements (*e.g.*, hovering, vertical gesture, and horizontal gesture) and their associated touches (*e.g.*, an initial tap, swiping or sliding, and pressing) are part of a *single* continuous gesture. EX2012, ¶140.

The Petition therefore fails to show that the RROD prior art combination would disclose or suggest claims 29 and 65. Thus Petitioner's mapping fails.

H. Claims 9, 32, 69: the aspect of the touch includes a duration aspect and the threshold includes a duration magnitude threshold

Claims 9, 32, and 69 recite “the aspect of the touch includes a duration aspect and the threshold includes a duration magnitude threshold.” Petitioner, however, fails to establish obviousness as to these limitations because a POSITA would not have been motivated to combine the Ramos Paper and the Ramos Video with Ording to meet the limitation “duration magnitude threshold.” EX2012, ¶142.

Petitioner asserts that a POSITA would have found it obvious “that a touch has at least a duration and a length that are used to determine whether the touch is intentional and [to] identify the type of gesture.” Pet., 81. Petitioner explains that

“Ording recognizes a ‘time period’ associated with a finger’s contact with a touch screen, and using such information to identify a touch was well known by the Critical Date.”) Pet., 81.

But the Zlider in the Ramos Paper and Video is not using duration to determine whether a touch is *intentional*. EX2012, ¶144; EX2008, 17:16–23 (agreeing there is no explicit disclosure or mention of the use of time thresholds to ignore inadvertent contacts in the Ramos Paper that describes the Zlider using duration to determine whether the touch from the user is intentional). Instead, the Zlider uses *proximity* to sense whether the stylus is approaching the working area (*i.e.*, moving the stylus past a threshold and closer to the working area “activates” the Zlider, thus signaling that the user has an intention to interact with the Zlider). EX2012, ¶145. Nor does the Zlider look at any “time period” associated with the touch to identify a touch. EX2012, ¶145.

Thus, as the Zlider is not concerned with the touch surpassing a time threshold to determine whether the touch is intentional, a POSITA would not look to Ording (or any other reference) that discusses a “time period” associated with a gesture to incorporate functionality not contemplated by the Zlider in the Ramos Paper and the Ramos Video. EX2012, ¶146. The Petition therefore fails to show that the RROD prior art combination would disclose or suggest claims 9, 32, and 69.

VII. GROUND 1B: THE RAMOS PAPER-RAMOS VIDEO-ORDING-HAYWARD COMBINATION DOES NOT RENDER OBVIOUS CLAIM 48

A POSITA would not have been motivated to combine the RROD prior art references with Hayward to render Claim 48 obvious. Petitioner claims that “[a] POSITA would have found it obvious to improve RROD by using its slider to modify parameters, such as the contrast in an image.” Pet., 96. Specifically, Petitioner alleges that “[a] POSITA would have found it obvious to modify the RROD with Hayward’s teachings to include a separate widget (as taught by Ramos Paper and Ramos Video) for use in adjusting exposure levels (as taught by Hayward) when using a camera applications/camera module, as described in Ording.” Pet., 97. Yet, nothing in the RROD prior art references suggest such an application. EX2012, ¶149.

The Ramos Paper and Ramos Video are *not* concerned with implementing touch gestures for image filtering, which is the focus of Hayward. EX2012, ¶150. Instead, the Ramos Paper and Ramos Video references are concerned with high precision parameter manipulation:

In this paper, we propose and study a mechanism for use with pressure sensitive input devices, called Zoom Sliding, or *Zliding* for short, in which users use the pressure modality to fluidly and explicitly *zoom* or adjust the granularity of the parameter space, while *sliding* or dragging

the input device *to perform high precision parameter manipulation* within that zoomed parameter space.

EX1004, 1 (emphasis added); EX2012, ¶150.

Ording focuses on cursor positioning methods. EX1006, [0009] EX2012, ¶151. Ording discloses methods to address the difficulty in navigating compact mobile devices forced to support increasing functionality but armed with outdated user interfaces such as physical pushbuttons. EX1006, [0004]–[0007]; EX2012, ¶151. Specifically, Ording addresses a method where the device identifies the contact area of a user’s finger on the touch screen and determines a cursor position based partially on this contact area. EX1006, [0009]; EX2012, ¶151. The method allows for dynamic adaptation to different user interactions and reducing accidental selections on a touch screen. *See* EX1006, [0007]; EX2012, ¶151.

On the other hand, Hayward is concerned with mapping touch gestures with image processing techniques (*e.g.*, image filters):

Accordingly, there is a *need* for techniques to implement a programmatic interface *to map particular user interactions, e.g., gestures, to the input parameters of various image processing routines, e.g., image filters*, in a way that provides a seamless, dynamic, and intuitive experience for both the user and the client application software developer.

EX1016, [0007]; EX2012, ¶152. A POSITA would not look to Hayward for high precision parameter manipulation techniques because the Zlider is focused on “fluid

integrated manipulation of scale (zooming) via pressure user input while parameter manipulation within that scale is achieved via x-y cursor movement (sliding).” EX1004, 1; EX2012, ¶153.

Indeed, Hayward already discloses and illustrates a gesture (*see* Pet., 95) to accomplish what Petitioner seeks to make more complicated by adding Ramos’ Zlider. EX2012, ¶154. Neither Petitioner nor its expert explain why Hawyard’s approach to adjusting contrast was lacking, or why Petitioner’s added complexity was needed or beneficial. Simply put, a POSITA looking to improve high precision parameter techniques would not look to a reference merely linking gestures with image processing techniques, or vice versa. EX2012, ¶156. The absence of any logical motivation is textbook hindsight, and Petitioner’s mapping for Claim 48 therefore fails.

VIII. CONCLUSION

For the reasons explained above, the challenged claims should be upheld.

Dated: April 30, 2025

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(a)(i), the undersigned certifies that this Paper—exclusive of the table of contents, table of authorities, certificate of service, and this certificate of word count—includes 10,398 words. The undersigned relies upon the word count generated by Microsoft Word.

/Eagle H. Robinson/
Eagle H. Robinson (Reg. No. 61,361)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on April 30, 2025, complete copies of Patent Owner's Response and EX2006-EX2012 were served on Petitioner via email (by consent), at the following email address(s):

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