

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS
AMERICA, INC., AND HP INC.
Petitioners

v.

NEODRON LTD.,
Patent Owner

Case IPR2020-00282
Patent 7,821,502

PATENT OWNER'S PRELIMINARY RESPONSE

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I. INTRODUCTION

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and HP Inc. (“Petitioners”) seek review of claims 1-21 of U.S. Patent No. 7,821,502 (“’502 Patent”) based on obviousness grounds. Petitioners’ petition is deficient and should not be instituted.

Petitioners fail to demonstrate that the challenged claims are unpatentable under the obviousness standard. Petitioner’s prior-art references Barkan and Tagg lack key claim elements in each independent claim of the ’502 Patent. Further, Petitioners fail to show that it would have been obvious for a POSITA to have modified Barkan with Tagg to arrive at the claimed inventions of the ’502 Patent.

Specifically, Barkan does not disclose the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another” because the coupling that is disclosed in Barkan does not occur “at opposing ends” of the electrode rows. Further, Barkan does not disclose the limitation “by respective row wrap-around connections made outside of the sensing area” because Barkan only discloses row connections that remain inside the sensing area that do not wrap around any object. This disclosure cannot constitute “wrap-around connections” nor connections that are “made outside of the sensing area.”

Petitioners and their expert, Dr. Andrew Wolfe, attempt to use Tagg to modify Barkan to fill in these missing limitations. While both Barkan and Tagg are references in the field of touch sensors, they are fundamentally different. Barkan discloses a single-layer design where additional traces are needed between the contact areas to route signals to the touch-processing circuitry. Notably, Barkan does not rely on and does not disclose “wrap-around” traces outside the sensing area. Tagg, on the other hand, uses a multi-layer design where row electrodes and column electrodes on different layers and overlap from a plan-view perspective. Tagg’s electrodes span across the width and length of the entire touch sensor area and are not composed of separate electrodes within the same row or column—and therefore only have trace connections outside the sensing area. Further, Barkan’s sensor areas extend to the periphery of the sensor’s substrate, and therefore there does not exist any space “outside of the sensing area” for trace routing.

More importantly, Dr. Wolfe offers no evidence, other than unsupported conclusions, of why a POSITA of the ’502 Patent would have been motivated to modify the single-layer design of Barkan with the trace routing of Tagg, which is a multi-layer design. Barkan explains that the reason the electrode traces extend to the periphery of the touch sensor is to interface with external wires, which allows the touch sensor to be removable from a frame for replacement. Thus, the “top row” trace in Barkan that Petitioners rely on cannot be modified to be a “wrap-

around connection” because that would frustrate the design intend of Barkan.

Dr. Wolfe’s conclusory statements reflect precisely the type of hindsight bias forbidden by the Supreme Court and the Federal Circuit.

Further, Petitioners failed to propose constructions for two claim terms in dispute, despite having identified these two claim terms as needing construction in the co-pending district court case. Under 37 C.F.R. § 42.104(b)(3), Petitioners are required to set forth the construction of the challenged claims. Petitioners should not be allowed to take inconsistent positions on claim construction of the same claims when both the district court proceeding and this *inter partes* review are subject to the same *Phillips* claim construction standard.

For these reasons, Patent Owner respectfully requests that the Board deny institution of this *inter partes* review.

II. OVERVIEW OF THE ’502 PATENT (EX. 1001)

The ’502 Patent, titled “Two-dimensional Position Sensor,” was duly and legally issued by the United States Patent and Trademark Office on October 26, 2010. Ex. 1001. Atmel Corporation, the original assignee of the ’502 Patent, was a pioneer in the development of practical and high-performing touch sensor devices. The ’502 Patent teaches innovative designs for positional capacitive touch sensors that provide accurate touch response while minimizing the number of sensing channels by employing a trace layout that includes wrap-around connection outside

the sensing area. *See* Ex. 1001 at 1:27-2:61; 3:10-47. For example, in one embodiment of the '502 Patent, a position sensor comprises a substrate with an arrangement of electrodes mounted on a surface, where the electrodes define an array of sensing cells arranged in columns and rows to form a capacitive sensing area, where the sensing cells each include a column sensing electrode and a row sensing electrode, where the column sensing electrodes of the same column are electrically coupled together and the row sensing electrodes of the same row are electrically coupled together, and where row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by row wrap-around connections made outside of the sensing area. *Id.* at 2:47-61.

Claim 1 is representative of this embodiment:

1. A position sensor comprising:

a substrate having a surface with an arrangement of electrodes mounted thereon,

wherein the electrodes define an array of sensing cells arranged in columns and rows to form a capacitive sensing area of the sensor, each sensing cell including a column sensing electrode and a row sensing electrode, the column sensing electrodes of sensing cells in the same column being electrically coupled together and the row sensing electrodes of sensing cells in the same row being electrically coupled together, and

wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.

III. LEGAL STANDARDS

The Board may not institute an *inter partes* review unless the petition demonstrates that there is a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged in the petition. 35 U.S.C. § 314(a). However, even if the Board determines the reasonable likelihood standard is met, the decision to institute is discretionary. *Id.*; *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1361 (2018) (“Even if there is one potentially meritorious challenge, we have said that the statute contains ‘no mandate to institute review,’ so the Director still has discretion to deny a petition.”).

An *inter partes* review petition may rely on an expert declaration, but “[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.” 37 CFR § 42.65(a). Conclusory expert testimony “does not qualify as substantial evidence,” and “unsupported and conclusory statements” from an expert concerning what one of ordinary skill would have understood or would have been motivated to do are not sufficient to meet the petitioner’s burden in an *inter partes* review. *TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1358, 1362-63 (Fed. Cir. 2019); *see Zimmer Biomet Holdings, Inc. v. Four Mile Bay, LLC*, Case IPR2016-00011, Paper 8 at 11 (Apr. 1, 2016) (rejecting expert’s conclusory statement that a structure in the prior art reference was a “distal end surface” and denying institution).

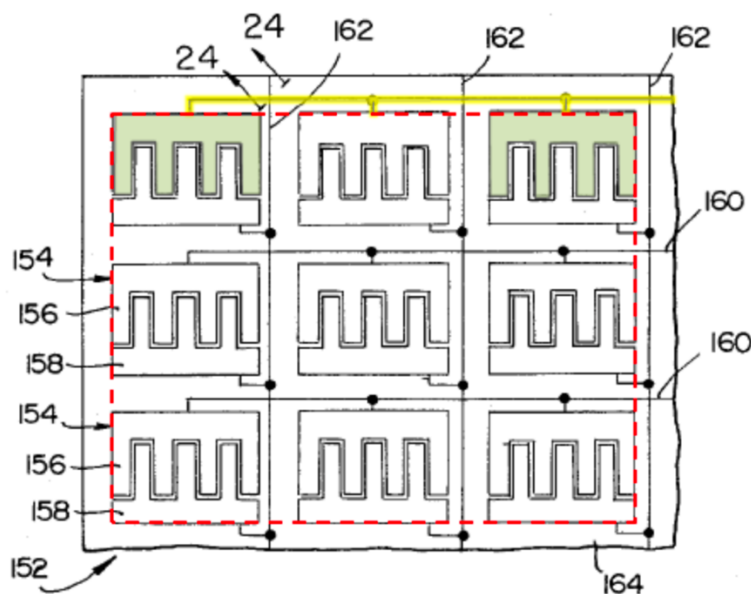
**IV. THE PETITION SHOULD BE DENIED BECAUSE
PETITIONERS FAIL TO DEMONSTRATE THAT THE
CHALLENGED CLAIMS ARE UNPATENTABLE**

Petitioners fail to show that Barkan and Tagg disclose each and every limitation of independent claims 1 and 17 and fail to adequately explain why a POSITA would modify Barkan with Tagg to arrive at the claimed invention. Petitioner's Barkan-Tagg combination is merely an exercise in using impermissible hindsight in an attempt to invalidate the '502 Patent.

A. Barkan does not disclose the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.”

Petitioner's primary reference, Barkan, lacks key claim elements identified in each independent claim of the '502 Patent. This is not surprising because Barkan, U.S. Patent No. 3,757,322, issued in 1973 and is directed to different technological problems and solutions as the '502 patent, which issued nearly 40 years later. For at least three independent reasons, Barkan does not disclose the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.” Petitioner resorts to mischaracterizing Barkan's disclosures and even its mischaracterizations do not support its arguments.

First, Barkan does not disclose coupling of the “row sensing electrodes of sensing cells at *opposing ends* of at least one of the rows.” Claim 1 (emphasis added). Petitioners rely on Fig. 23 of Barkan and the accompanying portions of the specification (26:60-27:63), but they mischaracterize the disclosure.



Barkan at Fig. 23 (as annotated by Petitioners (Pet. 26)). Even if we assume that the sensor area only consists of nine sensor cells and focus only on the top row, as Petitioners did, Fig. 23 shows that the common trace that connects the row electrodes does not connect to the row electrodes at opposing ends. Pet. 25-27. Ex. 1002 ¶ 60-61. The common trace (shown in yellow) is attached to the top of the upper-left row electrode (shown in green) and is attached to the top of the upper-right row electrode (also shown in green). Because the locations where the top trace connect to both of these electrodes are *both* at the top edge of the

electrodes, the trace connections are not located at the “opposing ends” of “row sensing electrodes of sensing cells.” Petitioner does not show how two connections at the same top edge could constitute “opposing ends” (or how else this requirement is met by Barkan). Barkan has no other disclosure about the location of the trace connection to the upper row of electrodes. Thus, there is nothing in Barkan that discloses coupling of the “row sensing electrodes of sensing cells at *opposing ends*.”

Second, the trace shown in Barkan that Petitioners rely on is not a “row wrap-around connection[]” because it is not wrapping around anything. Petitioners mischaracterize the top trace as a row *wrap-around* connection when in fact, it is merely another trace in the Barkan sensor design that connects the separate electrode elements together, without wrapping around anything, just like the other row electrode traces 160 and column electrode traces 162. For example, Fig. 7 of the '502 Patent shows an embodiment that has row wrap-around connections (e.g., element 38), which lie “outside of the sensing area...to ensure the respective row sensing electrodes of the other rows are connected together.” Ex. 1001 6:53-7:10 (“The connection 38 runs around the outside of the sensing area to connect the electrode 34 providing the row sensing electrodes in columns x1 and x2 of row y2 with the electrode 36 providing the row sensing electrodes in columns x3 and x4 of row y2. Thus, all row sensing electrodes in this row are electrically connected

together. Similar wrap-around connections outside of the sensing area are made to ensure the respective row sensing electrodes of the other rows are connected together.”).

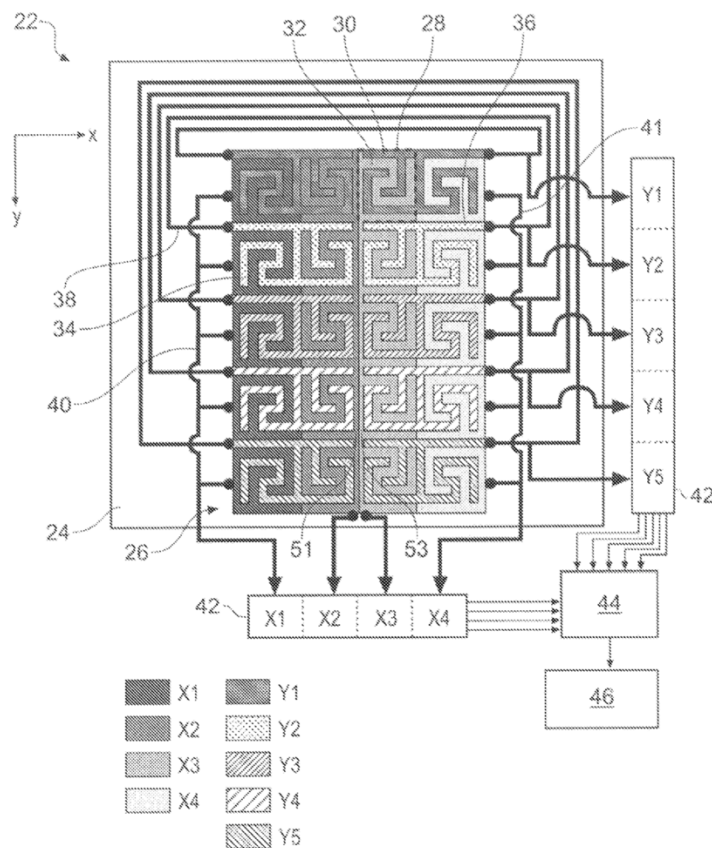


Fig. 3

Ex. 1001 at Fig. 3.

During prosecution, counsel made clear the configuration and purpose of the “row wrap-around connections,” which are used to couple the opposing ends of the row electrodes together”:

Claims 1-3, 7-15 and 19-24 were rejected under 35 U.S.C. § 102(b) over Mabusth (U.S. Patent No. 4,550,221). Applicant respectfully

traverses the rejection because the cited reference does not teach all the elements of the claims.

For example, claim 1 recites, in part, “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.” *Mabusth shows only one end of a column of electrode plates 44 coupled to something other than an adjacent electrode plate.* (Mabusth; FIG. 4.) *Adjacent electrode plates within the column are connected together with conductors 46 located on the bottom surface of the substrate.* (Mabusth; FIG. 4; col. 4, lines 49-55) *The conductors 46 are positioned completely within the sensing area of the electrode pattern.* (Mabusth; FIG. 4) Thus, Mabusth does not show or teach electrodes of sensing cells at opposing ends of a row (or column) connected using a wrap-around connection, in contrast to the above quoted elements of independent claim 1. Additionally, since Mabusth does not show or teach such a wrap-around connection, Mabusth also does not teach or show that such connections are made outside the sensing area, as also quoted above in claim 1.

Ex. 1008 at 0085 (Response to Office Action, November 24, 2009) (emphasis added); *see* Ex. 2003 (Mabusth) at Fig. 4. In fact, counsel explained this more than one time, as shown in another response to the Patent Office to distinguish over the prior art that did not show a coupling at opposing ends of row sensing electrodes:

FIG. 4 of Mabusth shows electrode plates forming column electrodes. “The plates of each column X1 through X12 are connected together by means of plated-through holes 44 and conductors 46 which are located on the bottom surface of substrate 28 (as shown in FIG. 4).” (Mabusth; col. 4, lines 50-54). The rejection appears to state that a column of plates at the edge of the sensing area in FIG. 4 of Mabusth “teaches where at least one of the rows are electrically coupled to one another in Figs. 3 & 4”. (Office Action, section 7) However, claim 1 recites “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one

another”. Mabusth does not show electrode plates at opposing ends of a row (or column) electrically coupled together as required in claim 1.

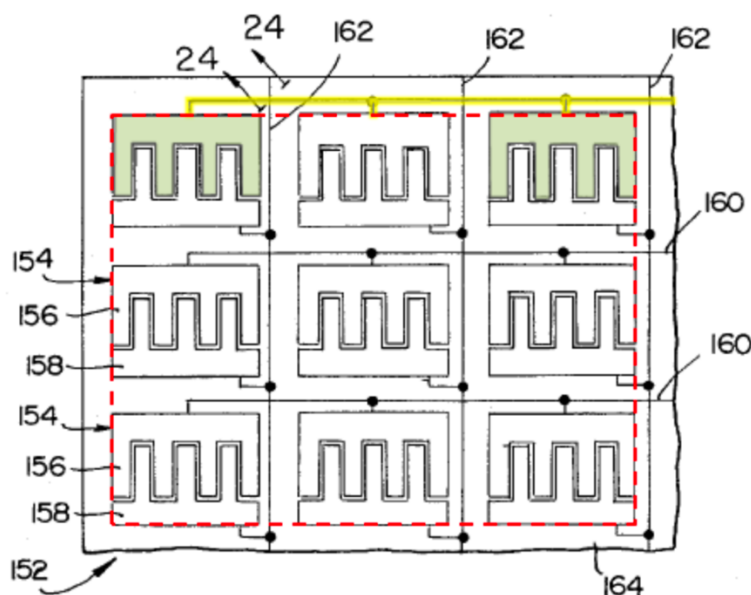
Additionally, claim 1 goes on to recite that the above-quoted row sensing electrodes are coupled to one another “by respective row wrap-around connections made outside of the sensing area”. In contrast to the above-quoted elements of claim 1 and the assertions of the rejection, the conductors 46 connecting one sensing plate to another sensing plate in FIG. 4 of Mabusth appear to all be shown within the sensing area of the touch sensitive device.

Ex. 1008 at 0059 (Response to Office Action, April 19, 2010) (emphasis added); *see* Ex. 2003 (Mabusth) at Fig. 4. This discussion makes clear that “row wrap-around connections” connect to the opposing ends of a row electrode, where the “connection” is routed outside the touch sensing area.

Petitioners’ interpretation of “row wrap-around connections” gives no weight to the term “wrap-around.” For instance, Dr. Wolfe opines that:

Accordingly, persons of ordinary skill in the art would have understood that *the highlighted lead connecting these X contact sub-areas*, including those on the X contact sub-areas on the left and right ends of the uppermost row, *is a “wrap around connection”* as recited in Claims 1 and 17 of the ’502 Patent.

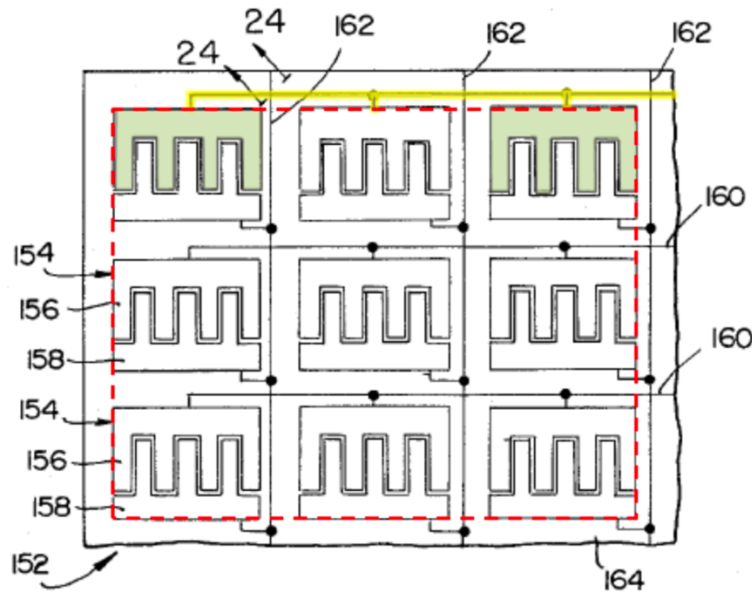
Ex. 1002 ¶ 61 (emphasis added); Pet. 27; *id.* at Fig. 23.



Barkan at Fig. 23 (as annotated by Petitioners (Pet. 26)). Under this interpretation, then each of the traces 160 would be a “wrap-around connection,” even though traces 160 in the second and third row (as shown in Fig. 23) do not wrap around anything but instead travel through the interior of the sensor area. Here, Petitioners’ approach ignores the term “wrap-around” and is improper because “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970). As evident from Petitioner’s own figure, the highlighted line is not a “wrap around connection” under the plain and ordinary meaning of the term.

Third, Petitioners fail to show that the top row’s connection trace resides “outside of the sensing area.” Petitioner’s argument relies on several unsupported assumptions. Petitioners concede that at best, Barkan discloses only that the top

row electrode's connection trace is outside the sensor area—and that is only if they define the sensor area as they did with a red dashed line in Fig. 23:



Barkan at Fig. 23 (as annotated by Petitioners (Pet. 26)); Ex. 1002 ¶ 60. Apart from Petitioners' arbitrary box drawing, Petitioners present no evidence that the sensor area of Barkan stops where Petitioners say it does. For example, Dr. Wolfe opines that "the left and top edges [of Fig. 23] are straight and solid, which would indicate to persons of ordinary skill in the art that these are the left and top edges of the touch sensor overlay." Ex. 1002 ¶ 61. But this is unsupported because the column connection traces 162 extend all the way to the top edge of the touch sensor, which suggests that the location where the top row connection trace (shown in yellow) resides is not "outside of the sensing area."

Indeed, in Fig. 23, Barkan defines the entire surface shown as the touch area, all the way up to the periphery: “Thus, the entire overlay 152 is transparent and the sundry contact areas 154 composed of the sub-areas *cover essentially the entire underlying visual display* (not shown).” Barkan at 28:14-17 (emphasis added); *see also id.* at 12:10-16 (“Essentially, the new interface constitutes a transparent overlay (made up of electrically discrete contact areas) *covering a visual display so that substantially the entire area of the visual display*, i.e., so much of the visual display as is intended to be used for information on the basis of which the overlay is to be manipulated, can be seen through the overlay.”) (emphasis added). Other passages in Barkan confirm that the touch area extends to the periphery of its substrate:

In a broad sense the present invention resides in the provision of an interface that includes a transparent overlay which covers a display....The overlay is in the form of an array of electrically conductive transparent contact areas which are electrically isolated from one another although disposed in mutual spaced coplanar immediate adjacency *so that taken as a composite the array of contact areas essentially covers the entire display which can be seen in its entirety therethrough.*

Barkan at 4:37-50 (emphasis added).

The reason the sensor area extends all the way to the periphery of the substrate (and why the sensor cells are located at the edge of the substrate) is that

the substrate—as a whole—may be replaced without affecting any of the external connections, as explained in Barkan:

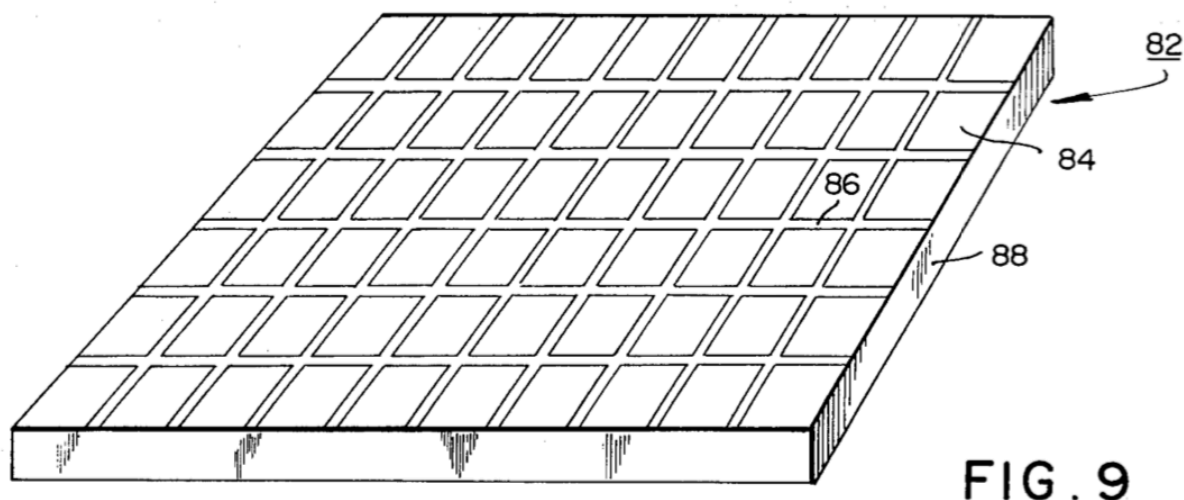
In one desirable form of the invention the overlay is set into a supporting frame and the frame provided with terminals *to engage the ends of the leads extending from the sundry contact areas to the periphery of the overlay. This enables the overlay to be easily replaced in the frame by another overlay without changing external circuitry.* Such replacement may be desirable for various reasons, chief among which are to change the arrangement of contact areas in a matrix and to change the shape of the contact areas and the matrix. Such changes may be made to secure a specific association of a given overlay with a given display.

Barkan at 5:35-46 (emphasis added).

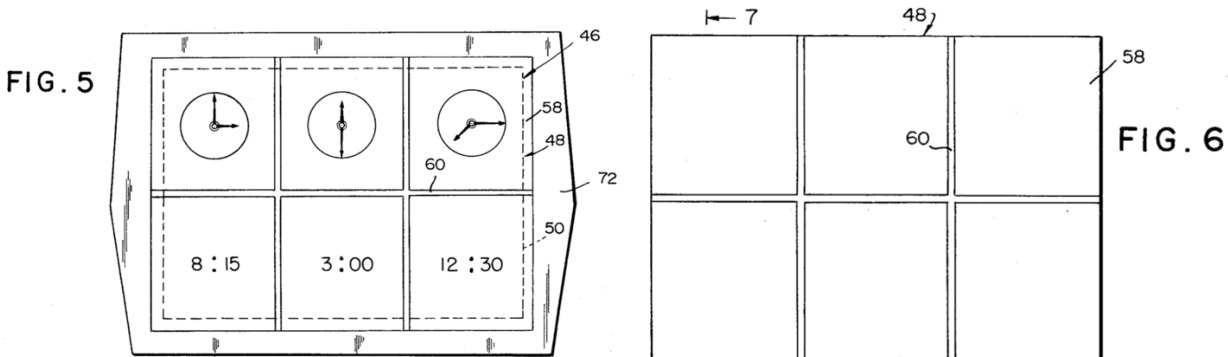
Fig. 9 of Barkan also describes the same desired geometry, where sensor cells are located at the edge of the touch panel—therefore defining the sensing area as the entire touch panel:

Such an arrangement obviously contains marginal (border) rows and columns of contact areas, these being *contact areas which are disposed adjacent the perimeter of the transparent [sic] pane 88 that forms the substrate* for supporting the contact areas, and also internal contact areas, these being areas which are spaced from the perimeter of the overlay by the marginally disposed contact areas.

Barkan at 19:4-11 (emphasis added), Fig. 9.



Barkan's Figs. 5 and 6 provide the background for this idea, where a replaceable touch sensor—having a sensor area to the edges of the substrate—is fitted into and connected with a frame having an underlying display.

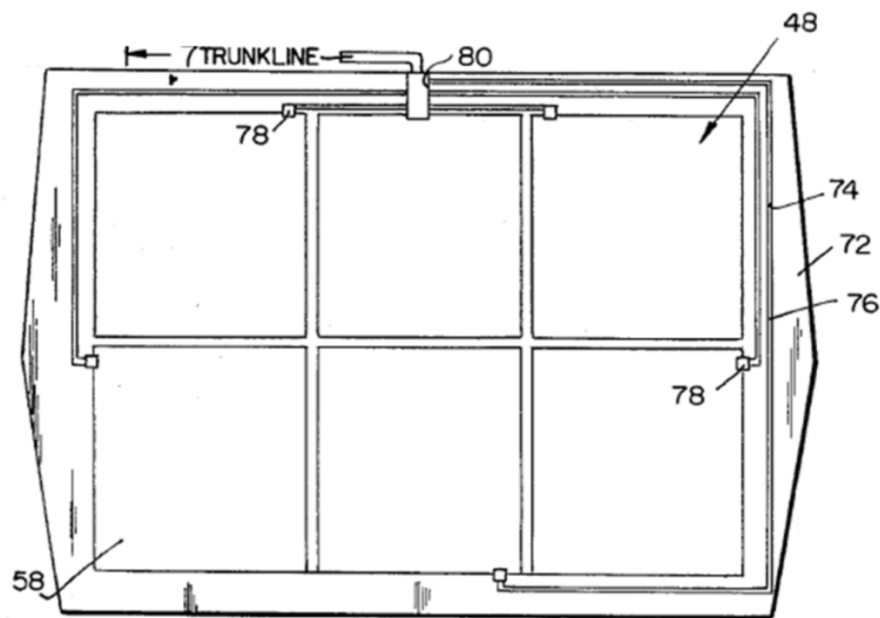


Barkan at Figs. 5, 6; *id.* at 17:8-64 (“It will be noted that the overlay 46 in FIG. 5 has been shown as carried by a supporting frame 72 which is provided with a recess, the perimeter of which constitutes a seat that receives the pane 52 of the keyboard 48, the visual display 50 being located beneath the overlay in the recess provided by the supporting frame 72.”); *id.* at 18:10-21 (“It will be observed that

the contact areas 58 have their borders, *which are juxtaposed to the borders of the pane, coincident with the borders of the pane*; that is to say, *the contact areas extend to the perimeter of the pane.*”) (emphasis added).

Petitioners do not address the above disclosures from Barkan, which confirm that Barkan’s top row’s connection trace does not reside “outside of the sensing area.” Petitioner’s argument is contradicted by the record evidence and must be rejected.

Indeed, Petitioners attempt to rely on Barkan’s Fig. 8 in order to remedy the deficiency of mapping Fig. 23 to this limitation of claim 1. But this reliance fails for several reasons. Figure 8 is shown below:



Barkan at Fig. 8. Dr. Wolfe argues that Fig. 8 would cause a POSITA to have “recognized that the uppermost lead in the embodiment of Figure 23 could likewise be routed through a surrounding frame, which would offer numerous advantages, including enhanced protection of the delicate lead and the avoidance of any visual interference with the underlying display.” Ex. 1002 at ¶ 62.

Dr. Wolfe, however, is confusing Barkan’s embodiment of Fig. 23 (and Fig. 9) with that of Figs. 5-6. As a starting point, as explained above, the entirety of the substrate shown in Fig. 23 (and Fig. 9) is the sensing area because sensing cells are located at the edges of the substrate. Further, the substrate having the sensing area is intended to be replaceable and is to be connected to electrical leads external to the substrate. Barkan at 5:35-46. Again, this is why Fig. 23 shows the column leads (element 162, discussed above) leading up to the top of the substrate, where they appear to stop for no apparent reason. The column leads (162) are intended to interface with the “external circuitry.” Thus, at best, it is the external wires (76) embedded in the external frame, as shown in Fig. 8—and not the traces (160, 162) within the sensor area—that could be said to be “connections made outside of the sensing area.”

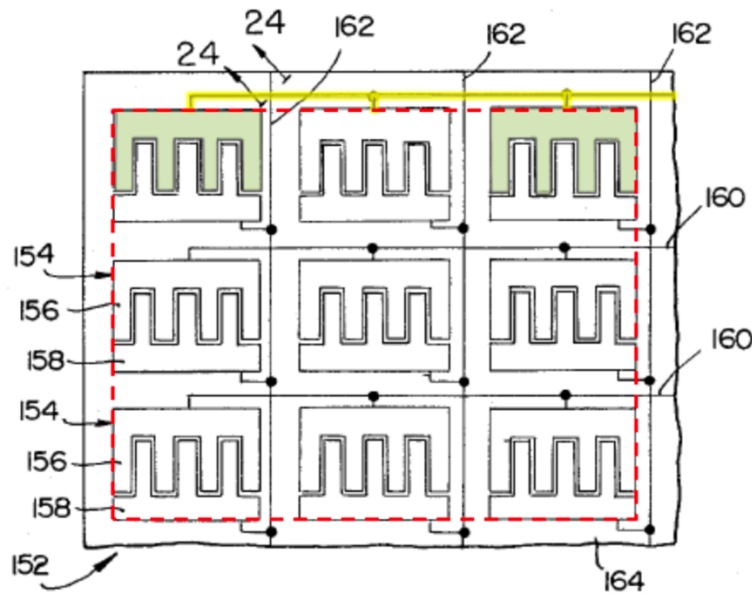
However, the external wires of Fig. 8 are not “row wrap-around connections” that electrically connect the “row sensing electrodes of sensing cells at opposing ends...to one another” because these external wires have nothing to do

with any rows of electrodes. Each of the external wires (76) electrically connects a single sensor cell (58) to the trunk line, where the various external wires do not connect. Barkan at 18:47-50 (“Thereby a trunk line, containing in this instance six wires, leads away from the overlay 48 for connection to the solid state switching station 66.”). More importantly, Fig. 8 does not disclose the earlier limitation “the row sensing electrodes of sensing cells in the same row being electrically coupled together.” Also, the fact that Fig. 8 appears to show two different external wires connected to the left edge of the bottom-left sensor cell and the right edge of the bottom-right sensor cell is entirely arbitrary—they could have been located at any locating in contact with those sensor cells, such as at their bottom surfaces.

For these reasons, Dr. Wolfe’s opinion that a POSITA would position “the lead connecting the X contact sub-areas in the uppermost row” of Fig. 23 to a location “even further outside the sensing area” is entirely conclusory and cannot show a reasonable likelihood of invalidity. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016) (references to what a POSITA would have known or done “cannot be used as a wholesale substitute for reasoned analysis and

evidentiary support, especially when dealing with a limitation missing from the prior art references specified.”).

Dr. Wolfe’s conclusory opinion is also incorrect and contradicted by Barkan’s teachings. Barkan’s Fig. 8 cannot suggest to a POSITA to reposition “the lead connecting the X contact sub-areas in the uppermost row” of Fig. 23 to a location “even further outside the sensing area” because this would be incompatible with Barkan’s teachings. Ex. 1002 ¶ 62. As discussed above, the row and column traces of the sensing area extend to the periphery of the substrate in order to interface with external contacts in the frame for easy replacement. Barkan at 5:35-46 (“In one desirable form of the invention the overlay is set into a supporting frame and the frame provided with terminals *to engage the ends of the leads extending from the sundry contact areas to the periphery of the overlay. This enables the overlay to be easily replaced in the frame by another overlay without changing external circuitry.*”) (emphasis added). In other words, it is not possible to extend the top row’s connection trace (shown in yellow) further out, such as into the frame, because that would defeat Barkan’s concept of a replaceable sensor area that interfaces with external contacts without changing the external circuitry.



Barkan at Fig. 23 (as annotated by Petitioners (Pet. 26)).

In sum, Dr. Wolfe’s opinion that “Persons of ordinary skill in the art would have recognized that the uppermost lead in the embodiment of Figure 23 could likewise be routed through a surrounding frame” (Ex. 1002 ¶ 62)) is conclusory and incorrect. Barkan’s Fig. 23 is incompatible with Fig. 8. And Barkan teaches away from the proposed modification. *See Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999) (“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.”).

B. Petitioner’s motivation-to-combine arguments are generic and conclusory, and fail to establish how and why a POSITA motivated to combine Barkan with Tagg to arrive at the claimed inventions.

As a “backup” obviousness argument, Petitioner attempts to rely on Tagg to fill in the limitations missing from Barkan. *See* Pet. 28 (arguing that “To the extent Barkan does not explicitly disclose ‘row wrap-around connections made outside the sensing area,’ Tagg discloses a touch screen with external wires that connect row sensing electrodes at opposing ends of each row.”). But Petitioner’s claim mapping does not contain any analysis, argument, or evidence about motivation to combine. *See id.* at 28-30.

Instead, Petitioner’s motivation to combine arguments are limited to two paragraphs, that Barkan and Tagg are “directed to common subject matter within the same field” (*id.* at 20) and that a POSITA would have “incorporate[d] external wires connecting electrodes at opposing ends of each column and row of electrodes as taught by Tagg” (*id.* at 21). These arguments are wrong and fail to establish motivation to combine as a matter of law. Further, Petitioner fails to establish why or how a POSITA would Barkan and Tagg to arrive at the claimed invention *See, e.g., Innogenetics, N.V. v. Abbott Labs*, 512 F.3d 1363, 1374 n.3 (Fed. Cir. 2008) (requiring “explanation as to *how* or *why* the references would be combined to produce the claimed invention”); *ActiveVideo Networks, Inc. v. Verizon Comms.*

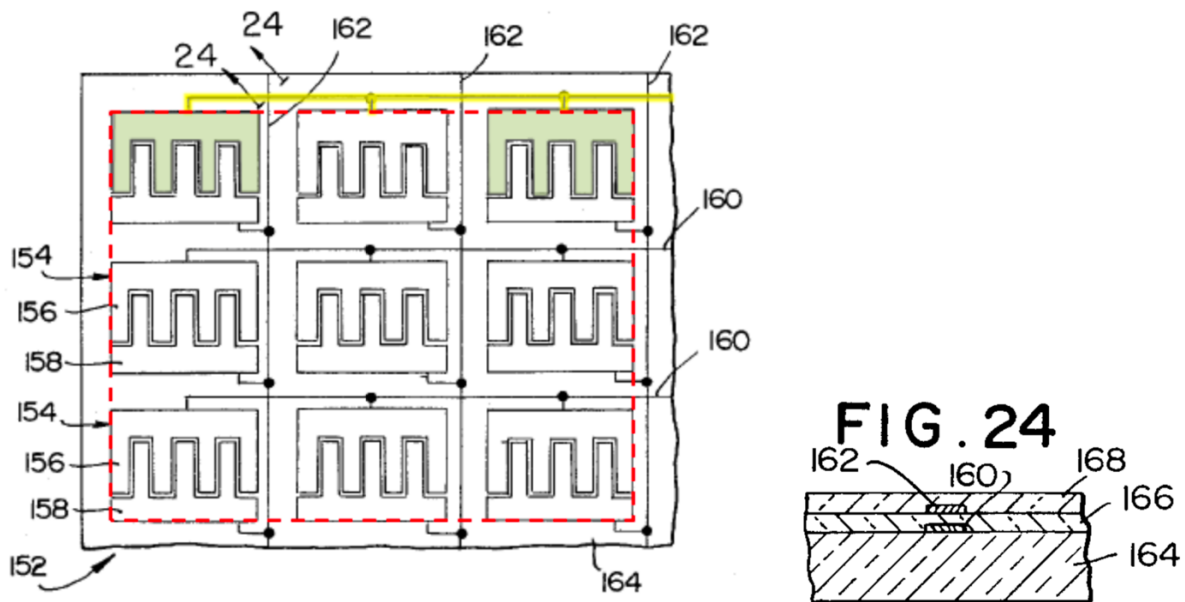
Inc., 694 F. 3d 1312, 1327–28 (Fed. Cir. 2012) (rejecting expert testimony that failed how or why specific references could be combined); *Personal Web Tech. v. Apple*, 848 F.3d 987, 994 (Fed. Cir. 2017) (vacating obviousness because of lack of explanation as to “*how* the combination of the two references was supposed to work.”); *Dell Inc. v. Realtime Data, LLC*, IPR2016-01002, Paper 71 at 15 (October 31, 2017) (upholding validity because petitioner’s combination theory failed to articulate “how specific references could be combined”) (citing *ActiveVideo*).

Petitioner’s argument that Barkan and Tagg are in the same field (Pet. at 20) is generic does not support a specific motivation to combine for the limitation at issue. The references issued 30 years apart (Barkan issued in 1973; Tagg published in 2003) and address different technical problems and issues.

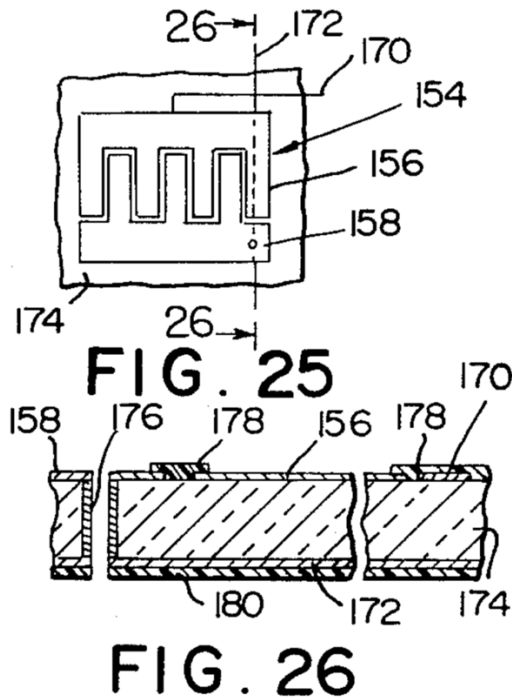
Indeed, while Barkan and Tagg are both references in the broad field of touch sensors, they fundamentally operate differently. Barkan is directed to a single-layer substrate design, whereas Tagg is directed to a multiple-layer substrate. Tagg’s teachings about are limited to multiple layers and are not applicable to or compatible with Barkan’s single-layer design.

The various embodiments of Barkan disclose sensor cells on a single-layer design (e.g., the sensor cells are at the same height from the substrate) where traces are used needed between the contact areas to route signals to the touch-processing circuitry. For example, the embodiment of Fig. 23 has “X row” and “Y-column”

sub-areas on the same layer. *See, e.g.*, Barkan at 27:1-28:21 (“For example, referring to FIGS. 23 and 24, first all of the X row contact sub-areas 156 and the associated leads 160 are applied as films by vacuum deposition through a stencil. Thereafter an insulating film 166...is applied through a stencil over the leads 160 and around the long edge and sides of the base of the rake-shaped sub-areas 156 and the outer edges of the outer teeth thereof. Then the Y column sub-areas and affiliated leads 162 are deposited by vacuum deposition through a stencil in the indicated locations, after which another insulating film 168...is applied over the Y leads 162 and around the long edge of the base of the rake and the sides of the base of the rake and the spaces between the interleaved teeth of the rake.”); *id.* at Figs. 23, 24.



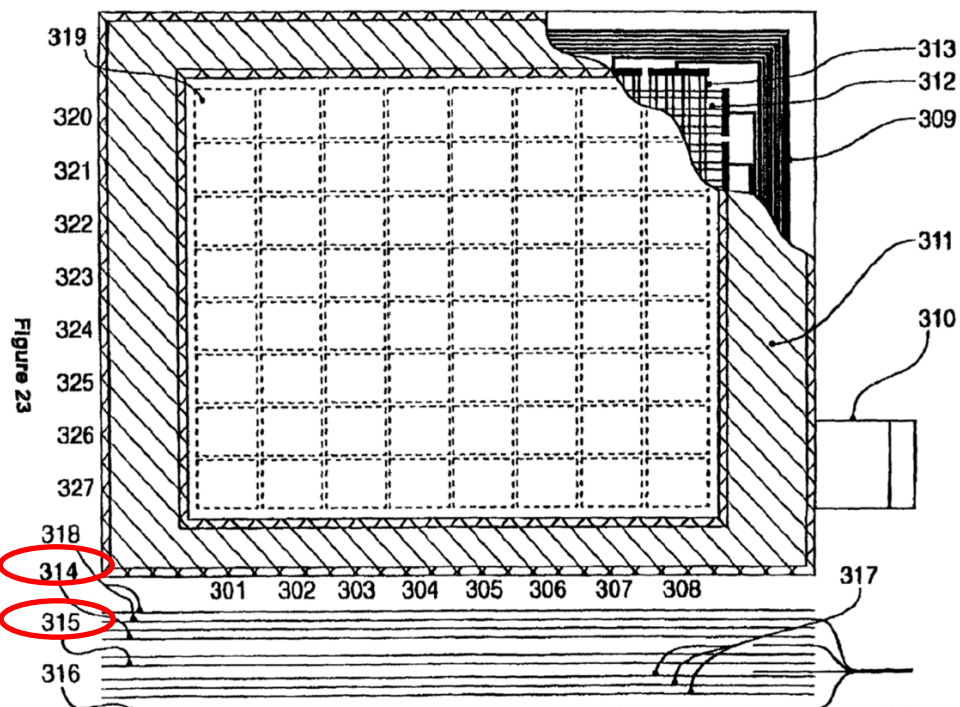
Barkan at Fig. 23 (as annotated by Petitioners (Pet. 26)) and Fig. 24. As another example, Barkan refers to an alternative embodiment where the traces are on different layers, but the “X row” and “Y-column” sub-areas remain on the same layer. *See* Barkan at 28:22-48 (“The X and Y sub-areas are deposited in the manner hereinabove described with the X leads 170 being deposited at the same time as the X sub-areas 156 and the Y contact sub-areas 58. The Y leads are thereafter deposited.”); *id.* at Figs. 25, 26.



Barkan at Figs 25 and 26.

In contrast, Tagg uses a multi-layer design where row electrodes and column electrodes may span across the width and length of the entire touch sensor area, including specifically a “row layer” and “column layer.” *See* Tagg ¶ 0201

(“FIG. 23 shows the general arrangement or a touch screen formed from *two sets* of 8 orthogonal capacitive zones formed by etching a transparent conductive sheet.... The sheets are stacked in layers as follows: *row layer 314*, *column layer 315*, rear shield 316.... *The columns and rows are on separate sheets of material 314 & 315 and stacked together.*”) (emphasis added); *see also* Tagg ¶ 0089 (“Dual surface sensors where two orthogonal arrays are printed *on two different layers* and sandwiched together. The top layer must provide gaps through which the bottom sensor can see. A preferred embodiment of a construction method for an orthogonal screen is described with the aid of diagrams in FIGS. 23-24.”) (emphasis added); *id.* at Figs. 23, 24.



Tagg at Fig. 23 (annotations added). Simply put, Tagg's multi-layer design is fundamentally different from the single-layer design of Barkan. There is no indication that Tagg's teachings, which require a separate row-layer and column layer, are applicable to Barkan's single-layer structure.

Indeed, the difference in structure confirms that Tagg teaches away from or is incompatible with Petitioner's proposed modification. Barkan's touch areas (or "pads") are undesirable when used with Tagg's multi-layer design because touch areas on the top layer would block the bottom layer sensor, which Tagg expressly warns against: "Dual surface sensors where two orthogonal arrays are printed *on two different layers* and sandwiched together. The top layer must provide *gaps* through which the bottom sensor can see. A preferred embodiment of a construction method for an orthogonal screen is described with the aid of diagrams in FIGS. 23-24." Tagg ¶ 0089 (emphasis added). In order to achieve these "gaps" described in this passage, Tagg describes that the embodiment of Fig. 23 uses "thin strips" of electrodes in order "to provide gaps through which the row sensors can detect the finger. If the columns were not split up they would completely shield the rows and no information would be picked up." Tagg ¶ 0201; Fig. 23. Tagg also teaches that pads, if used at all, should be relatively small otherwise they would cause an "'obscuring' capacitance" that would impair proper measurement of touches on the touch sensor. Tagg ¶ 130 ("In principle, pads can be of many

different sizes and materials but it is important to bear certain fundamental physical limitations in mind with reference to pad size and cable length. This can be summarised in the general principle that the “*obscuring*” *capacitance* due to these must not outweigh that being measured and preferably should be much less.”) (emphasis added).

Indeed, Tagg has no space for traces within the sensor area to connect separate contact areas, as shown in Barkan. For example, the entire “thin strips” that make up the row electrodes (and column electrodes) of Tagg are electrodes that sense a touch input. The traces that exist outside the sensing area in Tagg are there because there is no space inside the sensing area to route the signals from the electrodes back to the touch-processing circuitry. Barkan does things very differently—the routing of signals from the electrodes back to the touch-processing circuitry is done through the sensing area.

Importantly, Dr. Wolfe offers no evidence, other than unsupported conclusions, of why a POSITA of the ’502 Patent would have been motivated to modify the single-layer design of Barkan with the trace routing of Tagg, which is a multi-layer design. Instead, his conclusory statements reflect precisely the type of hindsight bias forbidden by the Supreme Court and the Federal Circuit. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory

statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”). Such conclusory opinions are entitled to no weight.

Further, Petitioners offers only conclusory motivations to combine the asserted references, engaging in impermissible hindsight in an attempt to invalidate the '502 Patent. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983) (“It is difficult but necessary that the decisionmaker forget...the claimed invention and cast the mind back to the time the invention was made...to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art.”).

Specifically, Petitioners and Dr. Wolfe do not adequately explain why a POSITA would combine the “row wrap-around connections made outside the sensing area,” allegedly disclosed by Tagg, with Barkan. Dr. Wolfe can only generally explain that both Barkan and Tagg involve capacitive sensors with electrodes and disclose circuitry and signal processing techniques to determine the location of a touch on the sensor. *See, e.g.*, Ex. 1002 ¶¶ 49, 50.

However, as explained above, Dr. Wolfe presents no evidence to support his conclusory statements concerning combining Barkan with the “row wrap-around connections made outside the sensing area” allegedly disclosed by Tagg. Dr. Wolfe

fails to show why and how a POSITA would be motivated to combine Barkan with Tagg to arrive at this specific requirement. *See ActiveVideo*.

For example, in the section where Dr. Wolfe discusses Tagg for this limitation, his only discussion involving obviousness is for the proposition that the configuration of the “column” traces of Fig. 24 could be also be used for the “row” traces. Ex. 1002 ¶ 64 (“Although the external wires coupling opposing ends of the row electrodes are not shown in their entirety in Figure 23, persons of ordinary skill in the art would have understood that those wires would be configured in the same manner as the wires depicted in Figure 24. Accordingly, persons of ordinary skill in the art would have understood that the wires (309) are “row wrap-around areas [sic] made outside the sensing area.”). Here, Dr. Wolfe’s opinion is wrong because Tagg does not expressly show nor suggest that the row electrode layer has (or is able to use) the same trace configuration as that for the column electrode layer because of the lack of routing space. *See infra*, § IV.C.

Further, Dr. Wolfe provides no evidence that “Persons of ordinary skill in the art would have also found it obvious to incorporate external wires connecting electrodes at opposing ends of each column and row of electrodes as taught by Tagg.” Ex. 1002 ¶ 51. He states, without any evidence or support, that “persons of ordinary skill in the art would have appreciated, these connections would be beneficial in minimizing RC delay, and would thereby enable the use of lengthier

columns and rows of electrodes.” *Id.* However, Dr. Wolfe fails to explain how to achieve “row wrap-around connections” with the Barkan’s touch panel. *See id.*

Barkan’s touch panel has touch cells that extend to the periphery of the touch panel where the leads connected to the row and column electrodes extend to the periphery to interface with external wires:

In one desirable form of the invention the overlay is set into a supporting frame and the frame provided with terminals *to engage the ends of the leads extending from the sundry contact areas to the periphery of the overlay. This enables the overlay to be easily replaced in the frame by another overlay without changing external circuitry.* Such replacement may be desirable for various reasons, chief among which are to change the arrangement of contact areas in a matrix and to change the shape of the contact areas and the matrix. Such changes may be made to secure a specific association of a given overlay with a given display.

Barkan at 5:35-46 (emphasis added); *see supra*, § IV.A. The “external” trace configurations of Barkan and Tagg are fundamentally different and incompatible with each other, and Dr. Wolfe offers no explanation how to reconcile this important fact. Instead, Dr. Wolfe can only muster the statements that “these connections would be beneficial in minimizing RC delay, and would thereby enable the use of lengthier columns and rows of electrodes” and “because Tagg teaches that the external wires are formed from conductive silver track, a POSITA would have understood that this could be accomplished using known materials and techniques.” Ex. 1002 ¶ 51. These are clear example of conclusory statements

prohibited in an obviousness analysis that reflect the “impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.” *TQ Delta, LLC*, 942 F.3d at 1361.

C. Regardless, Tagg does not disclose the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.”

As discussed above, Petitioners’ failures for Barkan and motivation to combine are dispositive. Regardless, Tagg does not disclose the claimed limitation, which provides an independent basis for denying institution.

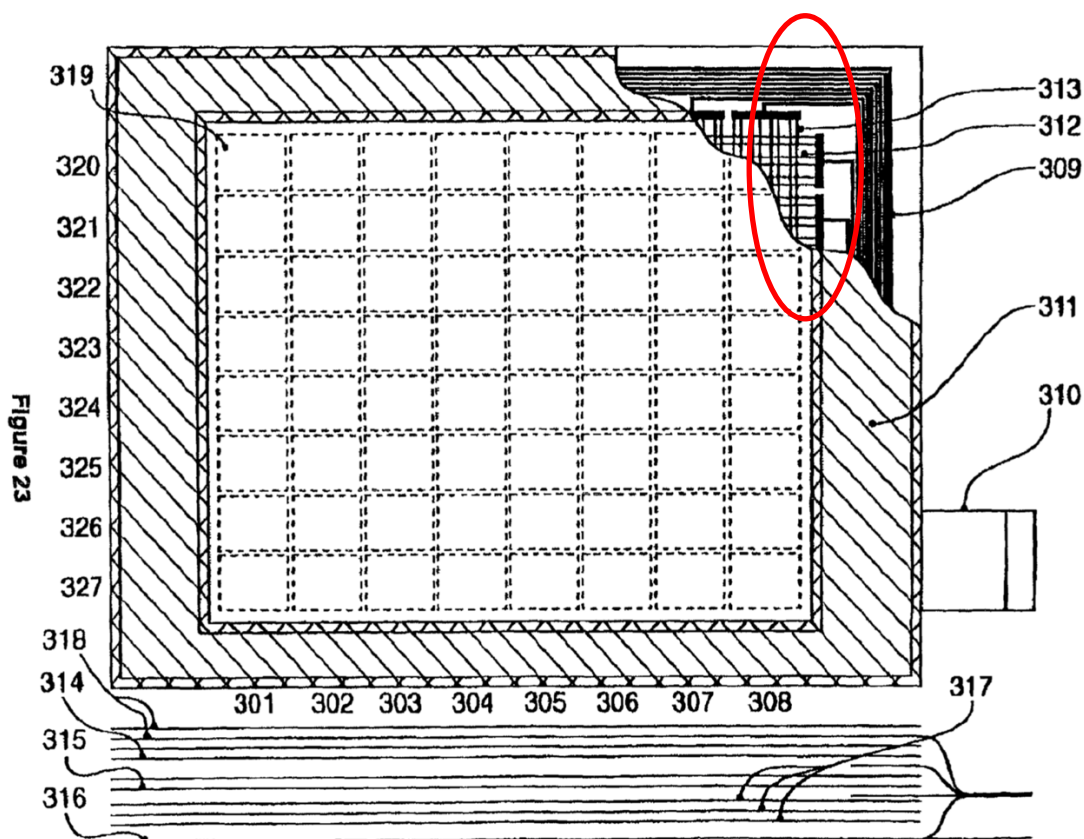
Petitioners recognize the problems, as explained above, with Barkan in meeting the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.” Pet. 28; Ex. 1002 ¶ 63. To address this problem, Petitioners rely on Tagg. However, Petitioners only address the limitation “row wrap-around connections made outside of the sensing area” with respect to Tagg, and do not show how Tagg is applied to other limitations in this claim. Pet. 28-30; Ex. 1002 ¶¶ 63-65.

For example, in referring to “row sensing electrodes” (e.g., Ex. 1002 ¶ 63) Petitioners ignore the fact that Tagg does not disclose the earlier limitation “row sensing electrodes of sensing cells in the same row being electrically coupled

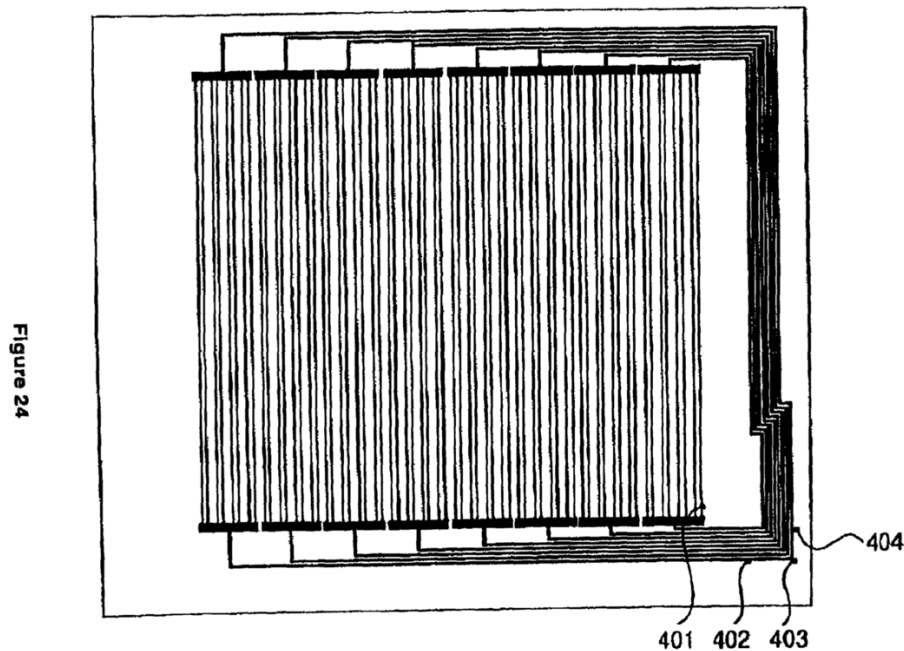
together.” *See* Tagg ¶ 0201 (“Each capacitive sensor zone, for example the cross hatched zone marked 319, is formed from a number of thin strips shown at 312 & 313 (approx 5 mm wide) with gaps between (approx 5 mm wide), electrically connected together at each side of the screen.”). That is, Tagg discloses electrically conductive “thin strips” that run across the entire length of the touch screen and do not show multiple “row (or column) sensing electrodes of sensing cells.” The claim requires that “each sensing cell includ[es] a column sensing electrode and a row sensing electrode,” and that these “row sensing electrodes of sensing cells in the same row [are] electrically coupled together.” *Id.* At best, Tagg shows several one-piece row (and column) electrodes, running across the entire length of the touch screen, that span across and belong to multiple sensing cells. *See* Tagg at Fig. 23.

Further, Dr. Wolfe admits that Tagg does not explicitly disclose “row wrap-around connections made outside the sensing area” and has to rely on a POSITA’s knowledge in order to make his assertion. Ex. 1002 ¶¶ 64 (“Although the external wires coupling opposing ends of the row electrodes are not shown in their entirety in Figure 23, persons of ordinary skill in the art would have understood that those wires would be configured in the same manner as the wires depicted in Figure 24.”); *see* Tagg ¶ 0201 (identifying “rows” as longer dimension on the touch screen in a 4:3 relation to “columns.”). Indeed, Fig. 23 of Tagg does not show that both ends of the row electrodes are connected via “row wrap-around connections.”

See Tagg at Fig. 23. Further, the way the traces for the row electrodes are shown in Fig. 23 suggests that the rows are only connected at one end because there is no space for the row traces to be routed from the other end of the touch screen, as shown in Figs. 23 and 24 below.



Tagg at Fig. 23 (annotation added).



Tagg at Fig. 24.

For example, because Figs. 23 and 24 show a single embodiment, both figures should be considered together. From them, it can be seen that there are traces that connect to the column electrodes of Fig. 24 are routed to the right side of the touch screen. However, Fig. 23 shows that the row electrodes are connected to traces that reside between the column electrodes and the aforementioned traces that connect to the column electrode. *See* Tagg at Figs. 23, 24. This suggests that the row electrodes are only connected on the right side of the touch screen because it would be difficult, if not impossible, for the traces connected to the left side of the row electrodes to route and connect to the traces at the right side of the row electrodes without crossing the column electrodes.

Therefore, because Petitioners fail to show that Tagg discloses the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area,” Petitioners fail to show that the independent claim 1 is obvious in view of Barkan and Tagg. Accordingly, the Board should decline to institute *inter partes* review.

D. In the same manner, Petitioners do not show that independent claim 17 is obvious in view of Barkan and Tagg.

Claim 17 is the other challenged independent claim in this Petition. Although Patent Owner does not represent that the two claims are identical, claim 17 has many similarities with claim 1. One difference, however, is a different order of limitations. For instance, the limitation of claim 1 (element 1C) discussed above that is missing from Barkan and Tagg, “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area,” has a similar counterpart in claim 17: “connecting a first broken segment at a first end of one of the at least one row or column to a second broken segment at a second end of the one of the at least one row or column using a wrap-around connection lying outside of the active sensing region, the plurality of segments

including the first broken segment and the second broken segment.” *See* Ex. 1002 ¶¶ 92-108; Pet. 43-54; *cf.* Ex. 1002 ¶¶ 48-65; Pet. 20-30.

Petitioners do not present additional analysis or evidence for claim 17 than what they have presented for claim 1. *See* Ex. 1002 ¶¶ 100-102 (referring to the analysis of the counterpart limitation (“Element C”) of claim 1); Pet. 48-50 (same). In fact, they present less—Petitioners do not rely on Tagg for claim 17 and do not contend that this element requires a modification of Barkan with Tagg, as they did for claim element 1C.

Petitioners did not rely on Tagg because claim 17 additionally recites that at least one row or column electrode is broken into segments: “wherein at least one row or column is broken into a plurality of segments within the active sensing region.” Claim 17 (element A). As explained above, Tagg clearly does not show this because it only shows “thin strips” that are continuous and not broken. Petitioners can only rely on Fig. 8 of Barkan to try to show claim 17’s limitation of “connecting a first broken segment at a first end of one of the at least one row or column to a second broken segment at a second end of the one of the at least one row or column using a wrap-around connection lying outside of the active sensing region.” *See, e.g.*, Ex. 1002 ¶ 101.

However, as explained above, Barkan does not disclose connecting a first “broken segment” at a first end of a row (or column) with a “broken segment” at a

second end of a row (or column) using a wrap around connection lying outside the active sensing region for several reasons.

As discussed above, Barkan's embodiment shown in Fig. 23 is incompatible with the embodiment of Fig. 8 because Fig. 8's connecting traces 160 and 162 reside inside the sensor area and extend to the periphery where they connect to external wires. *See supra*, § IV.A. Contrary to Dr. Wolfe's opinion, trace 160 cannot simply be extended to the frame, as shown in Fig. 8, as that would defeat the purpose of Barkan's invention, which included a replaceable touch sensor. Ex. 1002 ¶ 101; *see supra*, § IV.A.

Further, the embodiment of Fig. 8 does not have any "row" or "column" electrodes as it merely shows six independent touch pads, albeit arranged in a 2x3 configuration. This frustrates the limitation in 17C that requires "connecting the rows and columns to individual sensing channels" because Fig. 8 shows that the external wires are connecting to six separate channels. *See supra*, § IV.A. In other words, even if the six separate electrodes of Fig. 8 could be considered to be two "row electrodes" and three "column electrodes," the external wires are not "wrap-around connection[s]" because they do not electrically connect any two of the six sensor areas together. Petitioners do not explain this deficiency concerning Fig. 8 in their characterization of Barkan for claim 17 or anywhere else in the Petition. *See* Ex. 1002 ¶¶ 103-105. Petitioners fail to show that the independent claim 17 is

obvious in view of Barkan. Accordingly, the Board should decline to institute *inter partes* review.

E. Petitioners do not show, and Marten and Boie do not contain, any disclosure regarding “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area.”

Petitioners make no attempt to show in the grounds that Marten and Boie contain disclosure to remedy the deficiencies discussed above with respect to Barkan and Tagg. Petitioners do not point to, and the additional prior art (Marten Ex. 1005) and (Boie Ex. 1006) does not contain any disclosure to remedy the missing limitations of independent claims 1 and 17 as discussed above.

Indeed, Marten and Boie have few details about the design of touch sensors, their electrodes, and the interconnecting traces. Marten and Boie do not show at least the limitation “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area” of claim 1 and its counterpart in claim element 17C.

Petitioners only rely on Marten to show the limitation of “wherein the capacitance measurement channels are configured to drive a plurality of sensing electrodes substantially synchronously in phase with one another” of claim 8 and the limitation “wherein the capacitive sensing channels employ driving signals

which are substantially phase- synchronous with respect to one another” of claim 21. *See* Ex. 1002 ¶¶ 137-144. Petitioners only rely on Boie to show the limitation of “wherein the processor is operable to calculate a centroid of the signals across rows and a centroid of the signals across columns.” *See* Ex. 1002 ¶¶ 146-149. Petitioners do not argue that Marten or Boie show any limitation in independent claims 1 and 17.

For these reasons, Petitioners fail to show that the challenged independent claims (and their dependents) are obvious over the asserted prior art references, and the Board should accordingly decline to institute *inter partes* review.

**V. THE PETITION SHOULD BE DENIED BECAUSE
PETITIONERS FAIL TO MAP THE CHALLENGED CLAIMS
TO THE ASSERTED PRIOR ART UNDER PETITIONERS’
CONTENDED CONSTRUCTION**

“[T]he petition must set forth...[h]ow the challenged claim is to be construed.” 37 C.F.R. § 42.104(b)(3). The construction referred to in 37 C.F.R. § 42.104(b)(3) is the construction proposed by the Petitioners—one that Petitioners believe is the correct construction under applicable law. *Toyota Motor Corp. v. Blitzsafe Texas, LLC*, IPR2016-00422, Paper 12 at 26 (PTAB July 6, 2016).

For petitions filed after November 13, 2018, claims in IPR proceedings are to be construed using the *Phillips* standard, which is the same claim construction

standard applicable in federal district court. *Changes to Claim Construction*

Standard in Trial Proceedings Before PTAB, 83 Fed. Reg. 51,340 (Oct. 11, 2018).

Petitioners proposed claim terms for construction in the district court case, but have improperly not done so here. Specifically, on March 6, 2020, Petitioners proposed seven terms for the '502 Patent:

- “a substrate having a surface with an arrangement of electrodes mounted thereon” (Claims 1-2, 5-8, 11-14, 16);
- “sensing area” (Claims 1-2, 5-8, 11-14, 16);
- “wherein row sensing electrodes of sensing cells at opposing ends of at least one of the rows are electrically coupled to one another by respective row wrap-around connections made outside of the sensing area” (Claims 1-2, 5-8, 11-14, 16);
- “electrically coupled” (Claims 1-2, 5-8, 11-14, 16);
- “sensing cell” (Claims 1-2, 5-8, 11-14, 16);
- “substantially synchronously in phase” (Claim 8);
- “a surface” (claims 1-2, 5-8, 11-14, 16).¹

¹ HP, Inc. identified all seven of the listed terms. The Samsung entities identified the first six terms and not the “a surface” term.

Ex. 2001 at 2 (Samsung Electronics Co., Ltd., Samsung Electronics America, Inc.’s “Disclosure of Proposed Terms for Construction”); Ex. 2002 at 2-3 (HP, Inc.’s “Disclosure of Proposed Terms for Construction”).

Petitioners’ failure to set forth specific constructions for the claim terms they have put into dispute in the district court case and their failure to explain how the construed claim is unpatentable under the statutory grounds identified are grounds for denial of institution. 37 C.F.R. § 42.104(b)(4); *ams AG, AMS-TAOS USA INC, et al. v. 511 Innovations, Inc.*, IPR2016-01792, Paper 15 at 13 (PTAB Mar. 16, 2017) (denying institution) (“Petitioner bears the burden of defining the claim terms, especially a claim term in controversy as it relates to the grounds, as is the case here.”). Petitioners have also not offered the Board any explanation why they require these terms to be construed in district court but not here. *See, e.g., Orthopediatrics Corp. v. k2M, Inc.*, IPR2018-01547, Paper 9 at 10 (PTAB Feb. 22, 2019) (denying institution) (“Petition fails to identify how the challenged claims are to be construed and applied to the prior art, and Petitioner also takes conflicting positions between this proceeding and the related district court proceeding.”).

Further, the Board has held that the rules “require a petition to identify, not only how the challenged claim is to be construed, but also how the construed claim is unpatentable” under “a claim construction that it consider[s] to be correct.”

Hologic v. Enzo, IPR2018-00019, Paper 17 at 8-9 (PTAB Apr. 18, 2018)

(quotations omitted); *see also Carefusion Corp. v. Baxter Int'l, Inc.*, IPR2016-01456, Paper 9 at 7 (PTAB Feb. 6, 2017). Petitioner has not done so for any of the seven terms they identified in the district court case as needing construction, including terms in independent claims 1 and 17.²

Patent Owner maintains that these terms should be given their plain and ordinary meaning. Under the new PTAB rules, Petitioners cannot take a different claim construction position in district court while relying on Patent Owner's "plain and ordinary" position in this IPR proceeding because both proceedings are subject to the *Phillips* standard. *See* 83 Fed. Reg. 51,340.

Although the parties have recently started the claim construction process in the co-pending district court case involving the '502 Patent, this does not suffice as an excuse for Petitioners to take inconsistent positions on claim construction between these two proceedings. If Petitioners contend that a term should be construed in district court, then that term should also be construed for this IPR proceeding since the standard is the same. At the very least, Petitioners should have informed the Board of their claim construction position, including their proposed constructions, instead of remaining silent to this day. *Facebook, Inc. v.*

² Terms for claim 17 were not expressly identified by Petitioners in the district court case because claim 17 is not asserted in district court. However, claim 17 contains similar terms that Petitioners identified for construction in claim 1, including "a substrate" and "a wrap-around connection lying outside of the active sensing region."

Sound View Innovations, LLC, IPR2017-50298, Paper 13 at 17 (PTAB Sept. 5, 2017) (denying institution) (“Perhaps even more troubling, Petitioner chose not to inform us in its Petitions that it simultaneously was arguing a different treatment of the terms of claim 19 before the district court.”).

Because Petitioners failed to provide appropriate constructions—constructions that Petitioners deem necessary for district court litigation—for terms found in every challenged claim, and Petitioners failed to apply their construction to their invalidity analysis, the petition should be denied.

VI. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board deny institution of this *inter partes* review.

Dated: March 16, 2020

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 9277 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

Dated: March 16, 2020

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on March 16, 2020, by filing this document through the Patent Trial and Appeal Board End to End System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioners:

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