

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 No. IPR2020-00282
U.S. Patent No. 7,821,502

PETITIONERS' REQUEST FOR REHEARING

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	ARGUMENT	2
	A. The Board Misapprehended the ’502 Patent Claims And Overlooked Barkan’s Disclosure of “Row Wrap-Around Connections”	2
	1. The Board Misapprehended Or Overlooked The Meaning Of “Row Wrap-Around Connections.”	3
	2. The Plain And Ordinary Meaning Of Limitation 1C Does <i>Not</i> Require A Connection Distinct From Limitation 1B.....	9
	B. The Board Overlooked Or Misapprehended The Evidence Supporting Dr. Wolfe’s Opinions Concerning The Motivation To Combine Barkan And Tagg	12
III.	CONCLUSION.....	15

LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 7,821,502
1002	Declaration of Dr. Andrew Wolfe
1003	Curriculum Vitae of Dr. Andrew Wolfe
1004	U.S. Patent No. 3,757,322 (“Barkan”)
1005	U.S. Patent Publication No. 2006/0017701 (“Marten”)
1006	U.S. Patent No. 5,463,388 (“Boie”)
1007	U.S. Patent Publication No. 2003/0067451 (“Tagg”)
1008	Prosecution History for U.S. Patent Application No. 11/428,670
1009	Joint Claim Construction Statement (USDC Western District of Texas Lead Case No. 1:19-cv-00819-ADA)
1010	U.S. Patent No. 5,844,506 (“Binstead”)

I. INTRODUCTION

Pursuant to 37 C.F.R. 42.71, Petitioners respectfully request rehearing of the Board's decision (Paper No. 11, "Decision") denying institution of *inter partes* review of claims 1-21 (the "challenged claims") of U.S. Patent No. 7,821,502 ("the '502 Patent"). Petitioners submit two separate and independent bases for granting rehearing.

First, the Board misapprehended the meaning of "row wrap-around connections" (element 1C) and its application to the Barkan reference in its obviousness analysis based on Barkan alone. The Board's decision appears to be based, at least in part, on Patent Owner's contention that the "**row** wrap around connections" must wrap around the *sensing area*, an interpretation that Patent Owner has since explicitly withdrawn. Applying the correct, plain and ordinary meaning of the term, Petitioners clearly explained how Barkan discloses a "**row** wrap-around connection" that electrically couples the row electrodes of the end sensing cells in a row and *wraps around the other electrodes in the row*, thus giving meaning to the term virtually identical to the disclosure of the '502 Patent.

Second, the Board misapprehended or overlooked the evidence supporting Dr. Wolfe's opinions concerning the motivation to combine Barkan and Tagg, including Dr. Wolf's own extensive, first-hand experience in the field. Indeed, contrary to the Board's conclusion that "there is no evidence in the record

suggesting that RC delay was a recognized problem in touch-sensitive panels at the time of the invention,” the admitted prior art discussed in the '502 Patent, not only recognizes this to be a problem, but identifies the solution of a connection to both ends of the electrodes.

Either one of the above bases alone provides more than sufficient grounds to grant rehearing and Petitioners, therefore, request the Board grant the present request.

II. ARGUMENT

Petitioners detail the basis for their request below, specifically identifying all matters Petitioners believe “the Board misapprehended or overlooked” and “the place where each matter was previously addressed” in the Petition. 37 C.F.R. § 42.71(d). In view of these considerations, Petitioners, therefore, request that the Board grant their request for rehearing and institute trial on all challenged claims.

A. The Board Misapprehended the '502 Patent Claims And Overlooked Barkan's Disclosure of “Row Wrap-Around Connections”

In the Decision, the Board denied institution, finding that Barkan does not alone render Claim 1 obvious because it does not teach or suggest the limitation 1C requirement of a “row wrap-around connection.” Specifically, the Board stated:

However, Samsung's application of limitation [1C] to Barkan fails to clearly assign any meaning to the term “wrap-around connection” that

distinguishes that limitation from the requirement in limitation [1B] that “the row sensing electrodes of sensing cells in the same row [are] electrically coupled together.” Ex. 1001, 12:20–22.

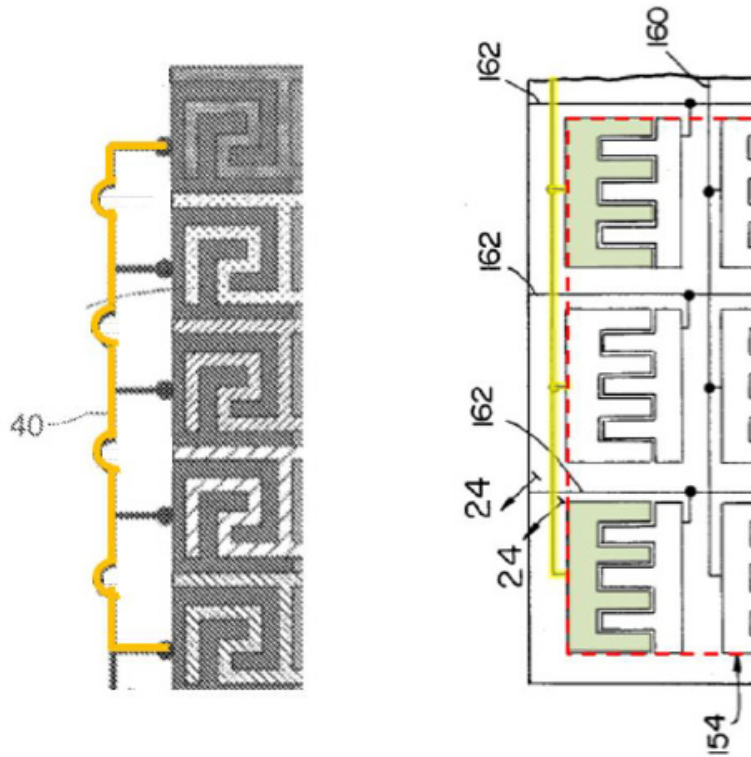
Decision (Paper 11) at 15. It is unclear from the Decision whether the Board (i) understood Petitioners to not be assigning any meaning to the “row wrap-around” portion of limitation 1C, or (ii) read limitation 1C to require a connection separate and distinct from limitation 1B. In either case, the Board misapprehended the '502 Patent specification and claims and/or overlooked Petitioners application of the claims to Barkan.

1. The Board Misapprehended Or Overlooked The Meaning Of “Row Wrap-Around Connections.”

To the extent the Board did not institute *inter partes* review because it accepted Patent Owner's arguments that Petitioners did not attribute any meaning to the “row wrap-around” requirement of element 1C, the Board misapprehended the meaning of the claim and adopted an interpretation that Patent Owner has now explicitly withdrawn in the district court litigation.

Petitioners consistently asserted that “*row* wrap-around connections” should be accorded its plain and ordinary meaning, *i.e.*, connections that wrapped around other electrodes in the *row*. Petition (Paper 4) at 10-11, 25-30; Petitioners' Reply (Paper 9) at 4-5. Consistent with this plain and ordinary meaning, Petitioners

identified the uppermost yellow-highlighted lead 160 in the annotated version of Figure 23 of Barkan appearing in the Petition at 26 as a “row wrap-around connection.” It is clear from that figure that the highlighted lead 160 electrically couples the row sensing electrodes of the end sensing cells of the top row and, in doing so, *wraps around the other electrodes in the row*. See, e.g., Petition (Paper 4) at 25-27; Petitioners' Reply (Paper 9) at 4-5. This evidence in the Petition clearly establishes the existence in Barkan of the claimed row wrap-around connection under any *reasonable* construction of that term. Indeed, as Petitioners noted in their Reply, this is virtually identical to the disclosure of the '502 Patent (below), which depicts a *column* wrap-around connection in Figure 3 that wraps around the other electrodes in the *column* in exactly the same manner as the uppermost lead 160 in Figure 23 of Barkan. Petitioners' Reply (Paper 9) at 4-5.



Ex.-1001, Figure 3 (annotated at left); Ex. 1004, Figure 23 (annotated at right)

In stark contrast to Petitioners' plain reading of the claim, Patent Owner argued that the "**row** wrap-around connections" had to wrap around the *sensing area* (a limitation found nowhere in the plain language of claim 1). Patent Owner's Preliminary Responses (Paper 8) at 12 (arguing "traces 160 ... do not wrap around anything but instead travel through the interior of the *sensor area*.")) (emphasis added). Patent Owner's incorrect reading of the claim was made even more clear in the district court litigation, where Patent Owner explicitly argued that the "**row** wrap around connections" were "connections that wrap around ... the *sensing area*." See, Ex. 2004 at 33-34 (emphasis added).

Now, after submitting its Patent Owner Preliminary Response (Paper 8) and Sur-Reply (Paper 10) in this proceeding and two rounds of claim construction briefing in the co-pending district court litigation, Patent Owner did an about-face regarding this limitation. Having fully considered Petitioners' arguments, Patent Owner has changed its position and does ***not*** dispute Petitioners' reading of the claim. Patent Owner has agreed to Petitioners' plain and ordinary meaning construction in the district court litigation and agrees that the element 1C "row wrap-around connections" need only wrap around the other electrodes in the ***row***:

Patent Owner statement: Based on Defendants' claim construction briefing, [Patent Owner] Neodron no longer believes there is any meaningful dispute between the parties on the plain meaning of this term. *See, e.g.,* Defs.' Resp. Br. at 25 ("***a row wrap-around connection is a connection that wraps around a row....***"); Defs.' Reply Br. at 20 ("the claim recites 'row wrap-around connections,' which requires a connection that ***wraps around the other electrodes in the row*** (i.e., the electrodes other than the two electrodes connected via the wrap-around connection."); Defs.' Resp. Br. at 25 ("the row-wrap-around connection must be made 'outside of the sensing area....'"). [Patent Owner] Neodron therefore has agreed to Defendants' proposed claim language, which is the original, verbatim

claim language as shown in Row 5 above.

Ex.-1009 (Joint Claim Construction Statement) at 6 (emphasis added).¹

Under the above, now agreed-upon understanding of the claim, each of the leads 160 in Figure 23 of Barkan is a “row wrap-around connection” because they each electrically couple the row sensing electrodes of the end sensing cells in each row and wrap around the other electrodes in the row. *See, e.g.*, Petition (Paper 4) at 25-27; Petitioners' Reply (Paper 9) at 4-5. Thus, the evidence cited in the Petition shows the lead 160 in Barkan satisfies this limitation as properly construed.

Patent Owner further argued in its Preliminary Response that the yellow highlighted uppermost lead 160 was “just like the other row electrode traces 160 and column electrode traces 162.” Paper 8 at 8. This sentiment was echoed in the Institution Decision at 15. Petitioners agree - every one of these traces 160, 162 is a wrap-around connection because each one wraps around other electrodes in the respective row or column. The critical distinction between the uppermost lead 160

¹ Good cause exists to consider this exhibit, as it demonstrates an about face concerning Patent Owner's construction of “row wrap-around connections,” which Patent Owner previously presented in an inconsistent manner in this proceeding, and appears to be a central component of the Board's Decision.

and the other similar leads in Barkan is that the uppermost lead is “made outside the sensing area” as required by element 1C. *Id.* To satisfy the requirement of the claim, only one “row wrap-around connection” needs to be “made outside the sensing area,” and nothing in the claims precludes the existence of other wrap-around connections that are not made outside of the sensing area. Thus, the fact that the upper-most lead 160 is “just like” the other leads 160 is no reason to deny the Petition.

The Institution Decision notes that the interpretation of a claim should give meaning to all claim terms such that no term is rendered superfluous. Institution Decision at 15. Nothing in the Petition’s application of Barkan to claim 1 renders any part of claim 1 superfluous. First, while the yellow-highlighted uppermost lead 160 of annotated Fig. 23 connects the electrodes of sensing cells at opposing ends of the row by wrapping around other electrodes in the row, it is entirely possible to connect these electrodes without so doing, such as with a conductor that passes through or even underneath the other electrodes in a row (*e.g.*, on the opposite side of the substrate). Similarly, while all of the leads 160 of Barkan may be considered row wrap-around connections, only the yellow-highlighted uppermost lead 160 is made outside the sensing area. Accordingly, Petitioners’ challenge to claim 1 does not render superfluous any term of claim 1.

Petitioners’ application of limitation 1C to Barkan clearly assigns meaning

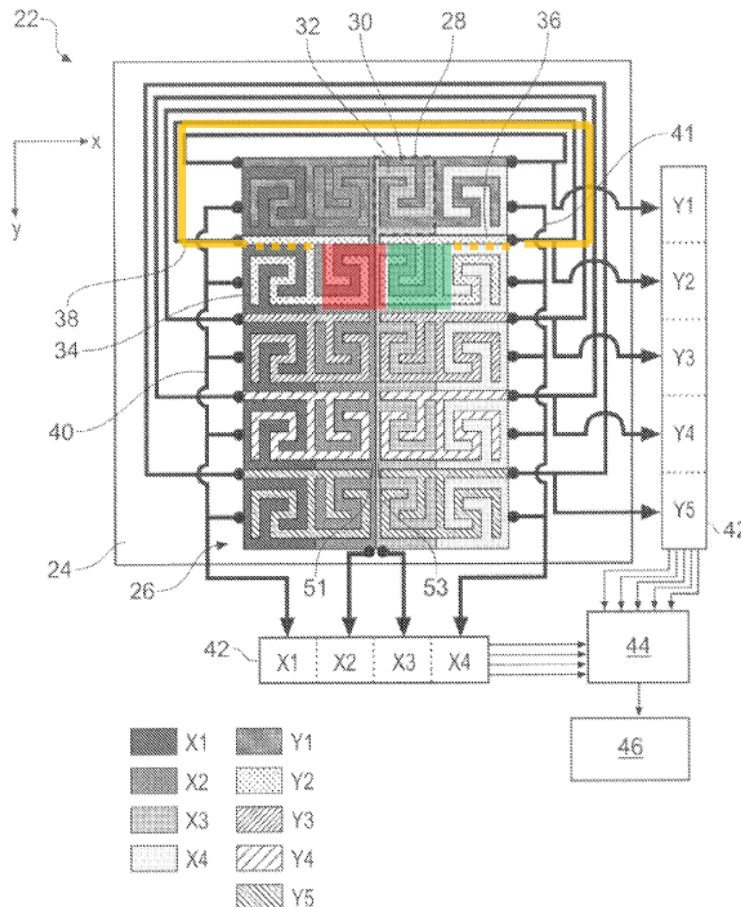
to both the terms “row wrap-around connection” and “made outside the sensing area.” *Id.* Because the Board appears to have misapprehended the meaning of element 1C based on a now withdrawn interpretation by Patent Owner, this request for rehearing should be granted with respect to all challenged claims.

2. The Plain And Ordinary Meaning Of Limitation 1C Does Not Require A Connection Distinct From Limitation 1B

Alternatively, if the Board did not institute *inter partes* review because it interpreted elements 1B and 1C to require separate and distinct connections, the Board misapprehended the meaning of the claim and adopted an interpretation that is inconsistent with all disclosed embodiments of the '502 Patent.

Element 1B recites “row sensing electrodes of sensing cells in the same row being coupled together,” while element 1C recites “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.” Ex.-1001 at Cl. 1. In other words, if there are four sensing cells in a row, element 1B requires the row electrodes in all four cells to be electrically coupled together and element 1C requires that the electrodes in the first and last of these sensing cells are electrically coupled by a row wrap-around connection. Nothing in the plain language of the claims requires that the coupling recited by element 1B and the coupling of element 1C be achieved by distinct connections.

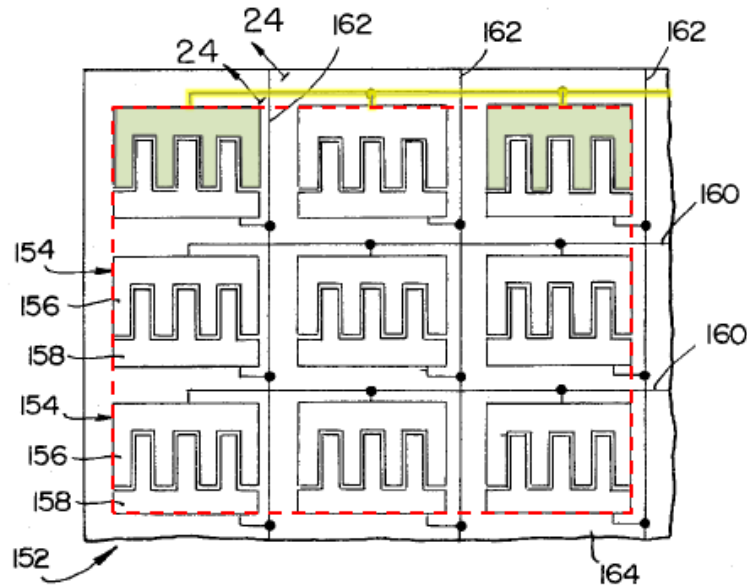
This plain reading of the claim is confirmed by the patent specification. For example, in each row of the embodiment of Figure 3 (see below), the row sensing electrodes in the middle two columns X2 (highlighted red) and X3 (highlighted green) are *not* electrically coupled to each other by any connections other than the row wrap-around connections 38 (highlighted yellow). *E.g.*, Ex.-1001 at 6:53-59, Fig. 3. Thus, a single row wrap-around connection 38 serves to provide the coupling required by both elements 1B and 1C. *Id.* This is true of all other rows in Figure 3, as well as the other embodiments of the '502 Patent. *E.g.*, *id.* at Fig. 7 (38), Fig. 8 (38).



Ex.-1001, Figure 3

Indeed, if limitations 1B and 1C were interpreted to require separate and distinct connections, the claims would not cover any embodiments of the '502 Patent.

As clearly demonstrated in the Petition, the uppermost lead 160 in Figure 23 of Barkan (below) functions in the same way as the wrap-around connection 38 of the '502 Patent. Petition (Paper 4) at 24-30. The lead 160 couples all the row sensing electrodes in the top row of sensing cells, as required by element 1B. And like connection 38 of the '502 Patent, the conductive lead 160 connects the row electrodes of sensing cells at the ends of the row. Further, as shown in the annotated version of Fig. 23 from the Petition at 26 (reproduced below), the yellow-highlighted lead 160 lies outside the sensing area as indicated by the dashed red line, and extends from the top of the row electrode at the left end of upper row, wraps around the row electrode at the middle of the upper row, and then connects to the top of the electrode at the right end of the row. *Id.* at 26.



Ex.-1004, Figure 23 (annotated); Petition (Paper 4) at 26

Accordingly, to the extent the Board did not institute *inter partes* review because it misapprehended elements 1B and 1C of the '502 Patent to require separate and distinct connections, the Board should grant rehearing and institute review.

B. The Board Overlooked Or Misapprehended The Evidence Supporting Dr. Wolfe's Opinions Concerning The Motivation To Combine Barkan And Tagg

Separate and independent of the reasons for granting rehearing based on the disclosure of Barkan alone, the Board should grant rehearing based on the combination of Barkan and Tagg.

In the Decision, the Board found that Dr. Wolfe's opinions concerning the combination of Barkan and Tagg were not supported by sufficient evidence.

However, in reaching this decision, the Board overlooked Dr. Wolfe's extensive

knowledge and experience in the field of capacitive position sensors. *E.g.*, Ex.-1002 at ¶¶ 3-16. Based on his knowledge and experience in the field, Dr. Wolfe opined that persons of ordinary skill in the art at the time of the alleged invention would have found it obvious to combine Barkan's array of electrodes with processing circuitry and external wires connecting electrodes at opposing ends of each column and row of electrodes as taught by Tagg. *E.g.*, Petition (Paper 4) at 20-21; Ex.-1002 at ¶¶ 49-51. Dr. Wolfe explained that persons of ordinary skill in the art would have been motivated to do so in order to minimize Resistive-Capacitive ("RC") delay, which was, and still is, a common problem caused by resistance in long electrodes. *Id.* He further explained this combination could be achieved using well-known components and techniques. *Id.*

These opinions, which are not controversial or disputed, are corroborated by the asserted prior art, the '502 Patent, and applicant's admitted prior art discussed in the '502 Patent. For example, as Dr. Wolfe explained in his declaration, Tagg teaches that the processing circuitry it discloses was well-known and generic. Petition (Paper 4) at 20-21; Ex.-1002 at ¶ 50. Similarly, the '502 Patent teaches that external wires like those taught by Tagg could be "attached to the electrodes of the sensing area as appropriate using *conventional techniques*," and further explains that where those wires cross over other connections, "[c]onventional electrical jumpers can be used at the locations where connections outside of the

sensing area cross one another.” Ex.-1001 at 7:20-26, 7:35-37 (emphasis added).

Furthermore, U.S. Patent No. 5,844,506 (“Binstead”), which is admitted prior art discussed in the ’502 Patent (Ex.-1001 at 1:49-56) and discloses a configuration of touch electrodes nearly identical to that of Tagg, teaches that “where conductor elements are used which have significant resistance along the length thereof it is possible to minimise [sic] the impact this has by providing conductor elements 32, 34 to contact both ends of conductor elements 12, 14 respectively.” Ex.-1010 (“Binstead”) at 5:35-39, Fig. 4. Thus, Binstead further confirms that RC delay was a recognized problem in touch panels as of, at least, 1998, and that a person of ordinary skill in the art would have understood that a connection to both sides of a row of electrodes would be a solution to that problem. *Id.*

Binstead was not separately submitted as an exhibit with the original Petition. However, it was explicitly cited and discussed as admitted prior art in the ’502 Patent (Ex.-1001 at 1:49-56), which was submitted as an exhibit along with its file history (Ex.-1008). Binstead should, therefore, be considered to be part of the record for purpose of this request. *See Kingston Tech. Co., Inc. v. SPEX Techs., Inc.*, 798 F. App’x 629, 635–36 (Fed. Cir. 2020) (stating that though “the Board has broad discretion to regulate the presentation of evidence, that discretion is not without limits” and finding that supplemental briefing was best characterized

as a “clarification of ... [parties'] prior position in response to other's arguments”) (internal quotations omitted). And, even if it is not considered to be part of the record, good cause exists to consider it now. Binstead confirms Dr. Wolfe's opinions, including the well-understood nature of the RC delay problem and the known solution, something that could not reasonably be expected to be in dispute, particularly given that Binstead is a cited prior art reference. Thus, good cause exists to consider this exhibit.

Accordingly, it appears the Board overlooked or misapprehended the evidence supporting Dr. Wolfe's opinions, which are based on his extensive knowledge and experience and are corroborated by numerous contemporary publications, including the '502 Patent, and rehearing should be granted.

III. CONCLUSION

As detailed in the Petition, Petitioners have demonstrated that Barkan, either alone or with Tagg, discloses all elements of the challenged claims, including the “row wrap-around connections made outside the sensing area” as recited in Claim 1. Petitioners, therefore, respectfully request that the Board grant rehearing and institute *inter partes* review of the challenged claims.

Respectfully Submitted,

/s/ Marc Pensabene
Marc Pensabene (Reg. No. 37,416)

CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. § 42.6(e) and § 42.105 that on July 13, 2020, a true and correct copy of this **Petitioners' Request for Rehearing** was served via express mail on the Patent Owner at the following correspondence address of record:

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