United States Court of Appeals for the Federal Circuit

APPLE INC.,
Appellant,

v.

INTERNATIONAL TRADE COMMISSION,
Appellee,

AND

MOTOROLA MOBILITY, INC.,
Intervenor.

2012-1338

Appeal from the United States International Trade Commission in Investigation No. 337-TA-750.

Decided: August 7, 2013

E. JOSHUA ROSENKRANZ, Orrick, Herrington & Sutcliffe, LLP, of New York, New York, argued for the appellant. With him on the brief were MARK S. DAVIES, RACHEL M. MCKENZIE and T. VANN PEARCE, JR., of Washington, DC.

MEGAN M. VALENTINE, Attorney Advisor, Office of General Counsel, United States International Trade Commission, of Washington, DC, argued for appellee. With her on the brief were DOMINIC L. BIANCHI, Acting General Counsel, and ANDREA C. CASSON, Assistant General Counsel for Litigation.

DAVID A. NELSON, Quinn Emanuel Urquhart & Sullivan LLP, of Chicago, Illinois, argued for intervenor. With him on the brief were CHARLES K. VERHOEVEN, of San Francisco, California. Of counsel on the brief were EDWARD J. DEFRANCO, ALEXANDER RUDIS and MATTHEW A. TRAUPMAN, of New York, New York.

Before MOORE, LINN, and REYNA, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* MOORE.

Opinion concurring-in-part and dissenting-in-part filed by *Circuit Judge* REYNA.

MOORE, *Circuit Judge*.

Apple appeals from the final decision of the International Trade Commission (ITC) that the asserted claims of U.S. Patent No. 7,663,607 ('607 patent) are invalid and that Motorola does not infringe the asserted claims of U.S. Patent No. 7,812,828 ('828 patent). Apple challenges the ITC's claim construction and its determinations of obviousness, anticipation, and noninfringement. For the following reasons, we *affirm-in-part*, *reverse-in-part*, and *vacate-in-part* the ITC's decision and *remand* for further proceedings.

BACKGROUND

This patent case involves smartphone touchscreens. The '607 patent discloses a touch panel with a transparent capacitive sensing medium that can detect multiple touches at once. '607 patent, at [57]. To achieve the

multitouch functionality, the touch panel employs a matrix of electrodes connected to circuits that measure the change in charge that occurs as a result of pressure applied to the screen. *Id.* col.5 l.27–col.6 l.7. The pressure-induced change occurs because the electrode rows are in a different layer than the electrode columns. *Id.* col.5 l.15–col.6 l.18. When a user touches the screen, the pressure applied at each intersection point causes charge to flow between the electrodes at that node. *Id.* Measuring circuits connected to the electrodes scan the matrix and measure the displaced charge at each node. *Id.* By detecting these changes, the touch panel can determine if and where a user has touched the screen. *Id.*

The '607 patent also discloses how to make the touchscreen transparent. It teaches constructing the electrodes with indium tin oxide (ITO), a transparent material. '607 patent, col.12 ll.35–52. But simply forming the electrodes from ITO may not render the matrix invisible because the ITO electrodes tend to be less transparent than gaps in the electrode matrix. *Id.* col.14 l.60–col.15 l.23. To remedy this problem, the patent teaches the use of "dummy" ITO pads to fill in gaps in the matrix. *Id.* col.15 ll.8–24. By inserting these pads in the matrix gaps, the matrix has the optical properties of a uniform sheet of ITO and thus becomes invisible to the user. *Id.*

The '828 patent discloses a method to determine if the displaced charge at the nodes corresponds to a finger touching the screen. It teaches that the touch panel software "mathematically fit[s] an ellipse" around the nodes at which the measuring circuits have detected a touch. '828 patent, figs. 13–15, col.60 l.5–16. Performing the "fit" allows the device to determine if pressure applied to the screen constitutes a finger touch as well as track the movement of the finger across the touchscreen. *Id.* at [57].

Apple initiated proceedings in the ITC, alleging that Motorola's smartphones and tablets infringed various claims of the '607 and '828 patents. Apple alleged that Motorola infringed claims 1–7 and 10 of the '607 patent and claims 1, 2, 10, 11, 24–26, and 29 of the '828 patent. Claim 1 of the '607 patent is representative of the asserted touch panel claims:

> A touch panel comprising a *transparent capacitive sensing medium configured to detect multiple touches or near touches that occur at a same time and at distinct locations* . . . wherein the *transparent capacitive sensing medium* comprises:
>
> a first layer having a plurality of *transparent first conductive lines* . . . ; and
>
> a second layer spatially separated from the first layer and having a plurality of *transparent second conductive lines* . . . each of the second conductive lines being operatively coupled to capacitive monitoring circuitry;
>
> wherein the capacitive monitoring circuitry is configured to detect changes in charge coupling between the first conductive lines and the second conductive lines.

'607 patent, claim 1 (emphases added). Claim 10, also disputed on appeal, recites a similar display arrangement and requires the touch panel to form a "pixilated image." Claim 1 of the '828 patent is representative of the asserted claims relating to mathematically fitting an ellipse:

> A method of processing input from a touch-sensitive surface, the method comprising:
>
> receiving at least one proximity image representing a scan of a plurality of electrodes of the touch-sensitive surface;

> segmenting each proximity image into one or more pixel groups that indicate significant proximity, each pixel group representing proximity of a distinguishable hand part or other touch object on or near the touch-sensitive surface; and
>
> *mathematically fitting an ellipse to at least one of the pixel groups*.

'828 patent, claim 1 (emphasis added). Motorola prevailed in the ITC proceedings. While the ITC determined that an article describing SmartSkin, a prior art touchscreen system, did not anticipate the asserted claims of the '607 patent, it determined that SmartSkin rendered those claims obvious. The ITC also found that U.S. Patent No. 7,372,455 (Perski '455) anticipated the '607 patent claims. The ITC also found that Motorola did not infringe the '828 patent. It construed the term "mathematically fitting an ellipse" to require the method to perform "a mathematical process" whereby "an ellipse is actually fitted to the data." J.A. 58–70. Finding that the Motorola products do not fit an ellipse to the electrode data, the ITC determined that those products do not infringe the asserted claims of the '828 patent.

Apple appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(6).

DISCUSSION

I. Standard of Review

We review the ITC's legal determinations *de novo* and its factual findings for substantial evidence. *Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1302 (Fed. Cir. 2010). Claim construction is a matter of law, which we review *de novo*. *Sorensen v. Int'l Trade Comm'n*, 427 F.3d 1375, 1378 (Fed. Cir. 2005). Obviousness is a question of law based on underlying facts. *Crocs*, 598 F.3d at 1308. We review the ITC's obviousness determination without deference and its factual findings for substantial evidence.

Id. Whether a prior art reference anticipates the claims is a question of fact, reviewed for substantial evidence. *Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1342 (Fed. Cir. 2010).

II. Anticipation of the '607 Patent: Perski '455

The ALJ found that Perski '455 anticipates the asserted claims of the '607 patent. He found that Perski '455 was § 102(e) prior art despite Apple's allegation of conception prior to the filing date of the application that issued as Perski '455. The ALJ found that the provisional application to which Perski '455 claims priority, U.S. Provisional Patent Application No. 60/446,808 (Perski '808), provides written description support for the disclosure in Perski '455. After resolving the priority issue against Apple, the ALJ determined that Perski '455 anticipates the '607 patent claims. The ALJ found that Perski '455 discloses a touchscreen that can detect multiple touches at the same time. The ITC declined to review these findings.

Apple argues that the ITC anticipation findings were in error. It contends that Perski '455 is not prior art because (1) Perski '808 does not disclose any way to determine whether multiple fingers touch the screen; and (2) Perski '808 does not specifically incorporate by reference the "front end" and "digital unit" aspects of U.S. Provisional Patent Application 60/406,662 (Morag) that the ALJ used to find claim 10 anticipated.

Even if Perski '455 is prior art, Apple argues that the reference does not disclose "detect[ing] multiple touches or near touches that occur at a same time and at distinct locations." It contends that the algorithm disclosed in Perski '455 cannot detect multiple touches that occur at the same time because it requires too much processing—the algorithm requires at least n*m steps to accurately scan all the nodes in a sensor matrix containing m rows and n columns. Apple asserts that Motorola also failed to

present any evidence that the matrix disclosed in Perski '455 can accurately detect multiple touches at the same time because a single large touch can cause an output signal to be detected on more than one conductor line.

The ITC and Motorola respond that Perski '455 is prior art to the '607 patent. They argue that Perski '808 discloses the same sensor matrix and multitouch detection algorithms as Perski '455. Regarding claim 10, Motorola argues that Perski '808 specifically incorporates the relevant portions of Morag.

The ITC and Motorola argue that Perski '455 discloses all of the limitations of the '607 patent claims. They argue that Perski '455 discloses a sensor that can detect multiple touches at the same time. They contend that the claims do not require a particular speed or accuracy in detecting the multiple touches, and regardless, Perski '455 discloses both "simple" and "faster" detection algorithms. Lastly, Motorola asserts that Perski '808 discloses the exact scanning method that the '607 patent discloses to "detect multiple touches or near touches that occur at a same time and at distinct locations."

As an initial matter, we agree with the ITC and Motorola that substantial evidence supports the ITC's determination that the disclosure in Perski '808 provides adequate written support for Perski '455. Perski '808 provides the same multitouch scanning algorithms as Perski '455. Both disclose a sensor matrix that senses a touch by scanning the nodes of the matrix. Both disclose a "simple and direct approach" in which the circuitry scans each node of the matrix, which requires at least n*m steps for a sensor matrix that contains n columns and m rows. Each reference also discloses the same "faster approach." Specifically, each discloses scanning the nodes affiliated with a group of lines on one axis, which requires between two steps and n+m steps depending on the number of lines in the group. This faster

approach, however, is not as accurate when detecting multiple touches that occur simultaneously at specific locations. To remedy this problem, both references disclose the "optimal approach" of combining the two methods to achieve the right balance of speed and accuracy. Thus, substantial evidence supports the ITC's finding that Perski '808 provides written support for Perski '455.[1]

We agree with Apple, however, that Perski '808 fails to incorporate by reference Morag.[2] For a prior art reference to anticipate a claim, the reference must disclose each claim limitation in a single document. *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). The prior art document, however, may incorporate subject matter by reference to another docu-

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[1] The dissent contends that Perski '808 does not provide adequate written support for Perski '455 because Perski '808 discloses multi-touch detection only as a "goal," whereas Perski '455 "enables" the detection of multiple touches. Dissent at 8–9. This is incorrect. Perski '808 explains that the disclosed scanning algorithms are "able to detect more than one finger touch at the same time." J.A. 16152. It discloses that the touchscreen detector is "capable of detecting multiple finger touches simultaneously." J.A. 16151. Moreover, Perski '808 expressly states that "[t]he present invention . . . enable[s] multiple and simultaneous finger inputs directly on the display." J.A. 16149. Nothing in the record supports the dissent's view that the scanning algorithms in Perski '808 could not detect multiple touches simultaneously. Indeed, the "faster approach" described in Perski '808 is virtually identical to the scanning algorithm disclosed in the '607 patent.

[2] Contrary to arguments by Motorola and the ITC, Apple raised this argument in its petition for ITC review and thus preserved it for appeal.

ment such that the incorporated material becomes part of the host document for the purposes of anticipation. *Id.* "To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents." *Id.* at 1282–83. Whether and to what extent a host document incorporates material by reference is a question of law, subject to *de novo* review. *Id.* at 1283.

Here, Perski '808 only makes a passing reference to Morag as a "method similar" for detecting the presence of a stylus. J.A. 16149. It does not affirmatively incorporate any information. Perski '808 does not even refer to the particular functionality in Morag that detects the presence of a stylus, let alone the process that outputs touch event information to form a pixilated image, as required by claim 10. Thus, Perski '808's reference to Morag falls short of identifying with detailed particularity the material that discloses the "pixilated image" limitation in claim 10. Because Perski '808 does not incorporate by reference the anticipatory subject matter from Morag, the ITC's finding that Perski '455 anticipates claim 10 of the '607 patent lacks substantial evidence.

Having resolved that Perski '455 is prior art for claims 1–7 of the '607 patent, we conclude that substantial evidence supports the ITC's finding that Perski '455 anticipates those claims. Perski '455 discloses an embodiment in which "[a] two-dimensional sensor matrix lies in a transparent layer over an electronic display device" and a finger touch at a certain location on the matrix "increases the capacitance between the first conductor line and the orthogonal conductor line which happens to be at or closest to the touch position." Perski '455, col.13 ll.32–40 (reference numerals omitted). It discloses two matrix scanning algorithms that are "preferably able to detect more than one finger touch at the same time." *Id.* col.14 ll.15–19.

As recounted above, the number of steps required to scan the matrix depends on the number of matrix columns and rows. The matrix disclosed in Perski '455 has n columns and m rows. Perski '455, col.13 l.65–col.14 l.4. Apple is correct that the slower method disclosed in Perski '455 requires at least n*m steps to scan the matrix because it scans each node one by one. *Id.* col.14 ll.20–43. But the reference also discloses a "faster approach" that requires between two steps and a "maximum of n+m steps." *Id.* col.14. ll.44–56. The faster approach scans groups of nodes per step, which significantly reduces the number of steps required to scan the matrix. *Id.* The reference also discloses a blend of the slower and faster approaches as the "optimal approach" to detecting multiple touches. *Id.* col.14 l.57–59.

Apple fails to provide any reason why the faster or optimal approaches would be too slow or inaccurate to detect multiple touches or why the disclosure of Perski '455 fails to enable multiple touches. To the contrary, as Motorola points out, the scanning algorithm disclosed in the '607 patent is very similar to the "faster approach" disclosed in Perski '455. The '607 patent discloses a sensing circuit that detects changes in capacitance at each node along n columns in the matrix by cycling through one row at a time for the m rows. '607 patent, col.5 l.60–col.6 l.6. Moreover, the claims of the '607 patent do not expressly contain a speed or accuracy limitation. Thus, we conclude that substantial evidence supports the ITC's finding that Perski '455 anticipates claims 1–7 of the '607 patent. The ITC's decision that Perski '455 anticipates claim 10, however, lacks substantial evidence.

III. Anticipation and Obviousness of the '607 Patent: SmartSkin

A. Anticipation

Motorola argues that if we reverse the ITC's decision that Perski '455 anticipates claim 10 of the '607 patent,

we should reverse the ITC's decision that SmartSkin does not anticipate claim 10. The ALJ determined that SmartSkin does not disclose the use of transparent conductive lines because the reference's statements about using transparent ITO conductive lines related to future work. The ITC declined to review the ALJ's finding. Motorola argues that the ALJ erred because SmartSkin's disclosure would have enabled a skilled artisan to build a touchscreen using transparent ITO electrodes.

We agree with Apple and the ITC that substantial evidence supports the ITC's finding of no anticipation. SmartSkin discloses an opaque surface covered with a grid of copper electrodes, not a transparent touchscreen based on ITO electrodes. In the SmartSkin system, a projector displays an image on the surface and circuitry connected to the copper electrode grid detects when a user touches the surface, enabling the surface to operate as a touch-screen. SmartSkin explains that its authors had developed two "working interactive surface systems based on this technology: a table and a tablet." J.A. 13603. Figure 7 from SmartSkin shows an exemplary "table" system:

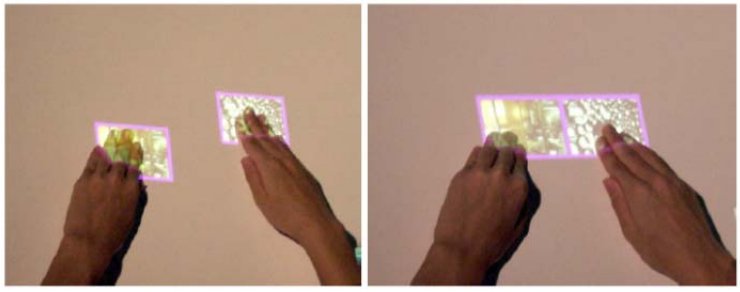

Figure 7: Two-handed operation is used to concatenate two objects.

J.A. 13599. Thus, the reference explains that the authors had not achieved a touchscreen employing transparent electrodes.

The only discussion of transparent electrodes appears under the "Conclusions and Directions for Future Work" section, in which the authors explain that they were interested in future "research directions." J.A. 13603. One of those directions was the use of transparent ITO electrodes that are "mounted in front of a flat panel display or a rear-projection screen." *Id.* There is no disclosure that the authors had achieved a transparent touch screen and the record does not indicate that it would have been routine to do so. Nor is there any disclosure in SmartSkin that the matrix of ITO electrodes would have created the "transparent . . . layer[s]" recited in claim 10. Although the ITO electrodes are transparent, the '607 patent explains that, when arranged in a matrix, "the patterned ITO can become quite visible thereby producing a touchscreen with undesirable optical properties." '607 patent, col.14 l.65–col.15 l.3.

We do not agree with Motorola that the ITC's determination regarding the disclosure of the SmartSkin reference lacks substantial evidence. Given SmartSkin's limited disclosure, we decline to disturb the ITC's finding

that Motorola failed to prove that SmartSkin anticipates claim 10 of the '607 patent.

B. Obviousness

Despite finding that SmartSkin did not anticipate the '607 patent claims, the ALJ concluded that they would have been obvious in light of SmartSkin in combination with a patent application that stemmed from the SmartSkin project, Unexamined Japanese Patent Application No. 2002-342033A (Rekimoto). The ITC reviewed the ALJ's decision and upheld it. The ITC agreed with the ALJ's conclusion that SmartSkin provides a motivation to combine the use of transparent electrodes with a mutual capacitance sensor. The ITC also agreed with the ALJ's finding that Rekimoto disclosed the limitations in claim 10 that are absent from SmartSkin.

Apple argues that the ITC erred in concluding that SmartSkin in combination with Rekimoto rendered obvious claim 10 of the '607 patent. Apple contends that its design and development story shows that a transparent multitouch screen would not have been obvious to those of skill in the art—Apple's highly-skilled engineers had to extensively research and modify the copper mesh SmartSkin design. It asserts that objective evidence reinforces that the '607 patent is not obvious. Specifically, Apple points to evidence that the industry praised the iPhone's touchscreen; that nearly every major cellphone manufacturer, including Motorola, copied the iPhone's touchscreen; and that the iPhone was a commercial success.

Apple argues that the ITC improperly employed a hindsight analysis by asking whether the invention was different from the prior art. Second, Apple asserts that the ITC undervalued the ingenuity in measuring capacitance changes and hiding the ITO circuitry, both of which are absent in SmartSkin and Rekimoto. Third, Apple

contends that the ITC improperly ignored Apple's objective evidence.

The ITC and Motorola respond that claim 10 would have been obvious. They contend that claim 10 is not limited to a particular method to measure capacitance and does not require hiding the ITO circuitry to achieve complete transparency. They argue that SmartSkin and Rekimoto disclose every limitation of claim 10. Motorola argues that SmartSkin defines the same problem as the '607 patent—creating a multitouch surface—and provides the solution, including the use of transparent ITO. It points to emails between Apple's engineers that SmartSkin "could work for multitouch input."

The ITC and Motorola argue that Apple's secondary consideration evidence is not adequate to overcome the strong prima facie showing of obviousness. They argue that multiple patents cover the iPhone's touchscreen and that Apple failed to prove nexus between the '607 patented invention and the commercial success. They contend that the industry praise for the iPhone related to features other than the multitouch screen and assert that Apple presented no evidence of copying.

We are troubled by the ITC's obviousness analysis. We have repeatedly held that evidence relating to all four *Graham* factors—including objective evidence of secondary considerations—must be considered before determining whether the claimed invention would have been obvious to one of skill in the art at the time of invention. *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012); *see also Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1379 (Fed. Cir. 2012) (collecting cases). Indeed, it is axiomatic that "[t]he establishment of a prima facie case . . . is *not* a conclusion on the ultimate issue of obviousness." *Transocean*, 699 F.3d at 1348.

The ITC failed to follow this precedent. Prior to even mentioning the secondary considerations, the ALJ concluded that "the evidence clearly and convincingly shows that the '607 patent is obvious in light of SmartSkin in combination with Rekimoto." J.A. 216. That error warrants vacating the ITC's decision. The ITC also concluded that claim 10 was obvious and issued its own findings regarding the first three *Graham* factors (rejecting some of the ALJ conclusions regarding the disclosures in the prior art). The ITC concluded that the '607 patent claims at issue would have been obvious in view of Smartskin in combination with Rekimoto. J.A. 529. The ITC, however, never even mentioned, much less weighed as part of the obviousness analysis, the secondary consideration evidence Apple presented. It stated only that it did not review the ALJ finding regarding secondary considerations. J.A. 523 n.7. This is not adequate under our law. The ultimate conclusion of obviousness is a legal conclusion to be reached after weighing all the evidence on both sides.[3] The ITC analyzed only the disclosure of the prior art references and based solely on that evidence determined the claims would have been obvious. We conclude that the ITC's fact findings regarding what the references disclose are supported by substantial evidence. And as the ALJ and the ITC found, the Smartskin reference is very close and expressly recommends as "Conclusions and Directions for Future Work" using transparent ITO electrodes to build a "transparent SmartSkin sensor." J.A. 13603. Indeed, the reference teaches that this transparent sensor could be integrated with "most of today's flat

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[3] The dissent's claim that objective evidence is the "best" evidence is not correct. Dissent at 14–15. In an individual case, it is certainly possible that objective evidence may outweigh the evidence that tends to establish obviousness. It is also possible that strong evidence under the first three *Graham* factors may outweigh the objective evidence. But there is no hierarchy of evidence.

panel displays" because those systems rely on an "active matrix and transparent electrodes." *Id.* The ITC erred, however, to the extent that it did not analyze the secondary consideration evidence.

This error was not harmless. Secondary considerations evidence can establish that "an invention appearing to have been obvious in light of the prior art was not" and may be "the most probative and cogent evidence in the record." *Transocean*, 699 F.3d at 1349 (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.3d 1530, 1538 (Fed. Cir. 1983)). This evidence guards against the use of hindsight because it helps "turn back the clock and place the claims in the context that led to their invention." *Mintz*, 679 F.3d at 1378. Apple presented compelling secondary considerations evidence that may have rebutted even a strong showing under the first three *Graham* factors, and the ITC failed to grapple with it.

For example, Apple presented evidence of industry praise by business publications. Time Magazine hailed the iPhone as the 2007 "Invention of the Year" in part because of the phone's touchscreen and its multitouch capabilities. J.A. 7483–84. Bloomberg Businessweek issued a 2007 article entitled "Apple's Magic Touch Screen," in which it labeled the "sophisticated multipoint touch screen" as "[t]he most impressive feature of the new iPhone." J.A. 7826. Around the same time, Wired Magazine recounted that, after Apple demonstrated the iPhone and its "brilliant screen," an AT&T executive praised the iPhone as "the best device I have ever seen." J.A. 8259 (internal quotation marks omitted). The ITC failed to address this evidence and the record does not appear to contain any contrary evidence.

Apple also presented evidence of copying. The ITC failed to address this evidence as well.

Lastly, Apple presented evidence that the iPhone has achieved a high degree of commercial success. Apple

presented financial information that showed that the iPhone and related products received billions in dollars of revenue from 2008 to 2010. J.A. 14184. Apple also presented evidence showing a nexus between the undisputed commercial success of the iPhone and the patented multitouch functionality, namely evidence that Apple's competitors copied its touchscreen and that those in the industry praised the iPhone's multitouch functionality. The ITC did not address any of this evidence.[4]

For the foregoing reasons, we vacate the ITC's decision that claim 10 of the '607 patent would have been obvious and remand the case for further proceedings. To be clear, we conclude that the ITC fact findings regarding the scope and content of the prior art (what the reference

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[4] The ITC did not weigh this evidence. After concluding that the claims were obvious, the ALJ did find that there was no nexus between the commercial success of the iPhone and the multitouch functionality that is the subject of the '607 patent. J.A. 217. We conclude that this fact finding is not supported by substantial evidence. Apple's evidence of industry copying of the multitouch screen and industry praise of this feature are strong evidence of nexus. The only contrary evidence is a cursory statement of Motorola's technical expert. Given the strong record evidence of nexus, this conclusory statement is insufficient to support the finding of no nexus. *See Perske v. Office of Pers. Mgmt.*, 25 F.3d 1014, 1020 (Fed. Cir. 1994) (holding that the Merit Systems Protection Board's finding lacked substantial evidence because contrary evidence in the record "overwhelm[ed]" the evidence that supported the Board's finding); *Eckstrom Indus., Inc. v. United States*, 254 F.3d 1068, 1076 (Fed. Cir. 2001) (holding that the Department of Commerce's fact finding was not supported by substantial evidence because, after a "review of all of the evidence," the "overwhelming evidence" supported a contrary finding).

discloses) are supported by substantial evidence. We remand so the ITC can consider that evidence in conjunction with the evidence of secondary considerations and determine in the first instance whether claim 10 would have been obvious to one of skill in the art at the time of the invention.

IV. Noninfringement of '828 Patent

The ALJ construed the term "mathematically fitting an ellipse" to require the method to perform "a mathematical process" whereby "an ellipse is actually fitted to the data," and, from that ellipse, "various parameters can be calculated." J.A. 58–70. Based on this construction, the ALJ found that Motorola's accused products did not infringe because they only measure data from the touchscreen but do not actually fit an ellipse. The ITC declined to review the ALJ's noninfrinement decision.

Apple argues that the ITC improperly limited the term "mathematically fitting an ellipse" to require calculation of the ellipse parameters after the ellipse has been "actually fitted." It contends that the specification repeatedly explains that the method fits an ellipse by calculating the parameters of that ellipse or by using default parameters as a baseline—there is no prior "fitting" or drawing of the ellipse. Apple asserts that it is irrelevant that the ellipse parameters could, in theory, define other shapes.

The ITC and Motorola contend that the ALJ correctly construed the limitation to require the software to "actually fit[]" the ellipse and then calculate the parameters of the ellipse. They contend that the inventors amended the claims during prosecution to overcome a reference that "obtain[ed] measured data . . . so long as the measured data happens to be measured from an object that 'is in general ellipse-like.'" J.A. 11920–21. They argue that the plain language of the claim requires the software to "mathematically fit[]" an ellipse separate from calculating

ellipse parameters. Lastly, they argue that the specification explains that the ellipse parameters are determined by "fitting an ellipse."

We agree with Apple that the ITC erroneously construed the "mathematically fitting an ellipse" limitation. The plain language requires the software to "mathematically fit[]" an ellipse to the data. That process refers to calculating the mathematical parameters that define an ellipse. The dependent claims further support this interpretation. Those claims recite the step of "transmitting one or more ellipse parameters," '828 patent, claims 2, 3, which implies that the steps in the independent method claim have already calculated the ellipse parameters. Those claims do not imply, as Motorola contends, a separate step of calculating the ellipse parameters.

The remainder of the intrinsic record is in accord with the ordinary meaning of the claim language. The specification repeatedly explains that the mathematical fitting process creates the parameters of the ellipse. *E.g.*, '828 patent, Fig. 18, col.25 l.54–col.26 l.21. The prosecution history is also consistent with the plain meaning of "mathematically fitting an ellipse." During prosecution, the applicants distinguished a prior art reference on the basis that the reference obtained data that happened to be "ellipse-like," *i.e.*, the prior art never mathematically fit the received data. J.A. 11920 (emphasis omitted). Those statements are consistent with the ordinary meaning of "mathematically fitting an ellipse" and do not suggest that we should limit the term to require the method to "actually fit[] [an ellipse] to the data." The correct construction only requires the method to calculate the parameters that define an ellipse. Accordingly, we conclude that the ITC erred in its construction of "mathematically fitting an ellipse."

Having adopted Apple's construction, we vacate the ITC's decision that Motorola does not infringe the '828

patent claims and remand the case for further proceedings. We do not accept Motorola's invitation that we render judgment of noninfringment on appeal. Contrary to Motorola's arguments, the ITC never found that the Xoom did not infringe under any construction. Nor did Apple concede noninfringment under any construction. *See* J.A. 133. Apple's expert did testify that Motorola's non-Xoom products did not infringe, but that testimony was based on his acceptance of the ITC's construction of "mathematically fitting an ellipse." J.A. 30653–55. We thus vacate the ITC's decision that Motorola does not infringe the '828 patent claims and remand the case to allow the ITC to consider in the first instance whether the accused products infringe under the correct construction of "mathematically fitting an ellipse."

CONCLUSION

We have considered the parties' remaining arguments and find that they are without merit. For the foregoing reasons, we *affirm-in-part*, *reverse-in-part*, and *vacate-in-part* the ITC's decision and *remand* for further proceedings.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND VACATED-IN-PART

United States Court of Appeals for the Federal Circuit

APPLE INC.,
Appellant,

v.

INTERNATIONAL TRADE COMMISSION,
Appellee,

AND

MOTOROLA MOBILITY, INC.,
Intervenor.

2012-1338

Appeal from the United States International Trade Commission in Investigation No. 337-TA-750.

REYNA, *Circuit Judge,* concurring-in-part and dissenting-in-part.

I.

The Smartphone has defined modern life. Be it in the workplace, the home, airports, or entertainment venues across America, individuals are tethered to their handheld devices. Not long ago, users primarily spoke into these devices. Today, fingers tapping, grazing, pinching, or scrolling the screen is a ubiquitous image that reflects how we conduct business, work, play, and

live. The asserted patent in this case is an invention that has propelled not just technology, but also dramatically altered how humans across the globe interact and communicate. It marks true innovation.

Today the majority invalidates seven claims in United States Patent No. 7,633,607 (the '607 Patent) based on prior art that would not enable one of skill in the art at the time of the invention. In concluding that the Perski '455 prior art reference can be backdated to claim priority to the provisional application, the majority misapplies our requirement that the earlier disclosure comply with § 112 ¶ 1. Given the critical differences between the provisional and non-provisional disclosures, I would reverse the ITC's finding that Perski '455 is entitled to the Perski '808 priority date and remand for additional proceedings.

On the issue of obviousness, rather than adopting the ITC's determination that the SmartSkin prior art reference would have motivated one of skill in the art to combine mutual capacitance technology with transparent screens, I would hold as a matter of law that the asserted claims are not obvious.

I join the majority in concluding that the ITC erred in making an obviousness determination without fully considering evidence pertaining to industry praise, copying, and commercial success, but I write separately to discuss my views as to the purpose and function of objective indicia of nonobviousness as indicators of innovation in the relevant field.

I join the remainder of the majority opinion, including treatment of arguments relating to non-infringement of U.S. Patent No. 7,812,828, construction of the claim term "mathematically fitting an ellipse," and the reasoning concluding that neither SmartSkin nor Perski '808 anticipate claim 10 of the '607 Patent.

Apple characterizes its invention as the first transparent, full image touchscreen that accurately detects and responds to multiple touches at once. More precisely, the asserted claims of the '607 Patent generally disclose a touch panel having a transparent capacitive sensing medium[1] configured to detect multiple, co-occurring touches at different locations to produce signals representative of the location of the touches. The touch panel, embodied in the marketplace as the interactive screen of an iPhone or iPad, is comprised of two layers of transparent electrically-isolated conductive lines where the two layers are spatially separated from each other and where conductive lines in one layer are positioned transverse to the conductive lines in the other layer, creating an array of intersection points. The images included below illustrate that the claimed detection and response to touch occurs through a "mutual capacitance" circuitry measuring the change in voltage between a horizontal wire and a vertical wire when a finger approaches a crossing point on the screen. *See* '607 Patent col. 9 ll. 52-62.

[1] The claimed touchscreen sensors are made out of indium tin oxide (ITO). As implemented in the '607 Patent preferred embodiments, ITO circuitry was masked to the user through caulking ITO channels with clear insulation. '607 Patent col. 12 l. 24 to col. 13 l. 6 and col. 14 l. 60 to col. 17 l. 11.

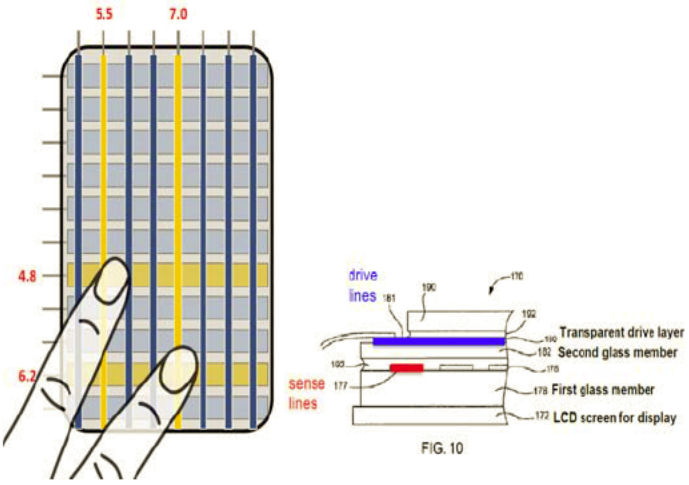

FIG. 10

It is the specially configured capacitive monitoring circuitry that detects changes in the capacitance between the two layers of conductive lines, indicating the location of the multiple touches on the touch panel. The patent enabled the multitouch technology and the transparent screen(s) into a device that fits the palm of a hand.

With this background in mind, I examine the claims of the '607 Patent alongside the prior art and a powerful record demonstrating Apple's technical and commercial achievement.

II.

The majority adopts the ITC's conclusion that Perski '455 discloses all the limitations of claims 1–7 in the '607 Patent. In finding that substantial evidence supports anticipation, the majority misconstrues a simplistic method for scanning a grid as a disclosure that would enable one of skill in the art to detect multiple finger touches. *See* Maj. Op. 7-8. The majority finds that the provisional patent application in Perski '808 provides adequate support for Perski '455, but fails to assess whether the provisional application describes how to make and use multiple finger detection "in clear, concise,

and exact terms." *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1295 (Fed. Cir. 2002) (quoting statute). I dissent from the majority's conclusion that Perski '455 is prior art to the '607 Patent.

A.

The Perski inventors initially filed a provisional patent application—Perski '808—on February 10, 2003. The non-provisional Perski '455 application was later filed on January 15, 2004. During the 11 months between the time the provisional and non-provisional applications were filed, the inventors continued to refine the invention, as reflected in the extensive revisions made in filings with the PTO. Those revisions clearly show that in filing for Perski '455, language from the provisional was removed and new language was added. Apple emphasizes the breadth of the inventors' revisions by constructing a redline[2] comparing the language of the provisional application in February 2003 and the language of the non-provisional application in January 2004:

[2] The language in black remained unchanged between the provisional and non-provisional filings. The language in red represents what appeared in the February 2003 filing of the provisional application, but was removed in the January 2004 filing of the non-provisional application. The language in blue represents additions made in the filing of the non-provisional application. The blue language never appeared in the original provisional application.

The goal of the finger detection algorithm, in this method, is to recognize all of the sensor matrix junctions that ~~bypass~~transfer signals due to external finger touch. It should be noted that this algorithm is preferably able to detect more than one finger touch at the same time.

A number of procedures for detection are possible. The most simple and direct approach is to provide a signal to each one of the matrix lines in one of the matrix axes, one line at a time, and to read the signal in turn at each one of the matrix lines on the orthogonal axis. The signal, ~~at this~~in such a case, can be a simple cosine pattern ~~in the~~at any frequency within the range of the sampling hardware and detection algorithms. If ~~an~~a significant output signal is detected, it means that there is a finger touching a junction. ~~This~~The junction that is being touched is the one connecting the ~~line~~conductor that is ~~provided~~currently being energized with ~~the~~an input signal ~~to~~and the ~~line~~conductor at which the output signal is detected. The disadvantage of ~~this~~such a direct detection method is that it requires an order of n*m steps, where n stands for the number of vertical lines and m for the number of horizontal lines. ~~It is possible to sample a group of reception lines at the same time, and even to sample all reception lines simultaneously, thus reducing the number of steps to n.~~In fact, because it is typically necessary to repeat the procedure for the second axis so the number of steps is more typically 2*n*m steps. However, this method enables the detection of multiple finger touches. When an output signal is detected on more then one conductor that means more than one finger touch is present. The junctions that are being touched are the ones connecting the conductor that is currently being energized and the conductors which exhibit an output signal.

J.A. 6857 (excerpted portion).

Motorola argues that Perski '455 is entitled to the February 2003 priority date because the Perski '808 provisional application provides written description support for the claimed invention. On this point, the Administrative Law Judge agreed, finding that the Perski '808 provisional application sufficiently disclosed the finger detection method and described algorithms for use with transparent mutual capacitance.

Apple contends that Perski '455 is not entitled to the earlier priority date because there is no clear and convincing evidence that Perski '808 satisfied the written description requirement. Apple submits that the provisional application lacked enabling disclosures because it was not until Perski '455 was filed in January 2004 that the inventors disclosed *how* the screen recognized multiple finger touches.

Apple also argues that the reference is not anticipatory because there is testimony that the '607 Patent was conceived of between September 2003 and November 2003—*i.e.*, before the Perski '455 application.[3] *See* J.A. 8728–29. The Administrative Law Judge never considered Apple's evidence of an earlier conception date because he was satisfied that Perski '455 was entitled to the earlier priority date. J.A. 182 (declining to make any findings on Apple's date of invention). On appeal, Apple seeks review of the Administrative Law Judge's decision regarding the Perski '455 priority date and his failure to address the conception date for the '607 Patent.

B.

In section § 119(e)(1) of the Patent Statute, a non-provisional utility patent application may be afforded the priority date of a related provisional application if the two applications share at least one common inventor and the written description of the provisional application *adequately supports the claims of the non-provisional application*. To backdate the later application with the earlier priority date, the specification of the provisional application must "contain a written description of the invention" as defined in § 112 ¶ 1. *New Railhead Mfg., L.L.C.*, 298 F.3d at 1295 (discussing 35 U.S.C. § 119(e)(1) and 35 U.S.C. § 112 ¶ 1).

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[3] To prove an earlier conception date, Apple must show by clear and convincing evidence that it conceived of the claimed subject matter before its filing date. 35 U.S.C.A. § 102(g)(2); *see also Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996) ("[P]riority of invention goes to the first party to reduce an invention to practice unless the other party can show that it was the first to conceive the invention and that it exercised reasonable diligence in later reducing that invention to practice.").

My review of the differences between the Perski '808 application and the Perski '455 application leads me to determine that the prior application does not "clearly conclude" that the Perski inventors possessed the claimed invention as of February 10, 2003. *Trading Tech. Int'l., Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1359 (Fed. Cir. 2010) (quoting *Lockwood v. Am. Airlines*, 107 F.3d 1565, 1572 (Fed. Cir. 1997)). In brief, Perski '455 should not have been awarded the earlier provisional application date because Perski '808 does not indicate that the inventors knew *how* to detect multiple touches in February 2003.

As filed, the provisional application discusses finger detection as a "goal," with the goal being "to recognize all of the sensor matrix junctions that bypass signals due to external finger touch." J.A. 16152. Recitation of a goal, however, is not sufficient if the corresponding steps are not disclosed. The majority credits the incomplete discussion of scanning the nodes of a matrix as satisfying the written description requirement without explaining how such a reference would put the Perski inventors in possession of the method for recognizing multiple finger touches and then generating the appropriate output signal. Maj. Op. 7. Indeed, the n*m "algorithm" discussed and heavily relied on in the majority's rationale is no more than the scanning of nodes in a matrix where n corresponds to columns and m corresponds to rows.[4] I cannot agree that scanning a matrix is the same as teaching detection of multiple finger touches.

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[4] The fact that a certain thing may result from a given set of circumstances is not sufficient to anticipate because ultimately the prior art "shows what it shows." *Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629, 639–40 (Fed. Cir. 2011) (internal citations omitted). I conclude that "n*m," by itself, is not an algorithm. What is missing are corresponding steps, such as those added 11 months later.

In January 2004, Perski '808 did not sufficiently explain how the multipoint detection would occur. J.A. 16152. It was not until Perski '455 that the inventors set forth a critical passage confirming that the initial goal had been met and "procedures for detection" were now "possible":

> In fact, because it is typically necessary to repeat the procedure for the second axis so the number of steps is more typically 2*n*m steps. However, this method *enables the detection of multiple finger touches*. When an output signal is detected on more then [*sic*] one conductor that means more than one finger touch is present. The junctions that are being touched are the ones connecting the conductor that is currently being energized and the conductors which exhibit an output signal.

J.A. 16610 at col. 14 ll. 35-43 (emphasis added); J.A. 6857 (indicating through color designations that the "output signal" language was not present in the Perski '808 application).

The record reflects that the 2*n*m scanning method "enabling the detection of multiple finger touches" was absent in February 2003 and the provisional application was limited to the simplistic n*m method which by itself merely describes the existence of a grid—*i.e.*, intersection lines parallel to each other. Because the disclosure in Perski '808 would not convey to a skilled artisan that the detection of an output signal on more than one conductor corresponds to multiple touches, I would reverse the ITC's finding that Perski '455 is entitled to the Perski '808 priority date. I would thus remand for additional proceedings determining Apple's conception date and whether, based on the newly developed record, Perski '455 qualifies as § 102(e) prior art.

III.

In addressing whether the claims of the '607 Patent are obvious, the majority endorses the ITC's underlying findings regarding scope and content of the prior art—leaving for another day resolution of the ultimate legal question of obviousness. Maj. Op. 18. I would decide the issue and reverse the ITC's determination that SmartSkin, alone or in combination with Rekimoto '033,[5] would have motivated one of skill in the art to combine mutual capacitance technology with transparent screens.

The asserted claims and the SmartSkin prior art are addressing two separate problems with two separate solutions. Prior to Apple's invention, it was known how to achieve multitouch functionality on opaque surfaces and it was known how to achieve a transparent screen with single touch. But, a transparent touchscreen that accurately detected and responded to simultaneous multiple touches remained elusive.

The record shows that after Steve Jobs charged Apple's engineers with the seemingly unachievable task of solving the multitouch problem, Apple explored adapting the primitive mutual capacitance system disclosed in SmartSkin to a novel system operating with transparent electrodes. The undertaking was fraught with technical challenges and ultimately proved that the incomplete guidance of the SmartSkin prior art contradicts the ITC's

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[5] The Administrative Law Judge based his obviousness analysis on SmartSkin in combination with Japanese Unexamined Patent Application Publication No. 2002-342033A (Rekimoto '033). The ITC disagreed with the Administrative Law Judge that Rekimoto '033 disclosed a relevant use of transparent electrodes. J.A. 523, n.6. Because I would reverse the ITC's analysis based on the primary prior art reference, I do not discuss the secondary Rekimoto '033 reference.

finding that SmartSkin would provide one of skill in the art with a "reasonable expectation of success." J.A. 523. SmartSkin, discussing surface-finger interactions through a mutual capacitance system, was focused on *opaque* prototypes such as interactive tables or walls. SmartSkin did not share Apple's focus of making a smaller, *transparent* screen interactive; rather, the grid of copper electrodes detected touch on two sizeable systems much larger than a handheld device or tablet: an 80 x 90 cm plywood table and a 32 x 24 cm gesture recognition pad. In my view, the prior art reference cannot be clear and convincing evidence of obviousness where, as here, it does not guide a skilled artisan towards a particular solution. *Bayer v. Schering*, 575 F.3d 1341, 1347 (Fed. Cir. 2009); *see also Unigene Laboratories, Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1361 (Fed. Cir. 2011) (declining to find a claim obvious when the when prior art does not provide "indication of which parameters were critical" or "direction as to which of many possible choices is likely to be successful").

There is no basis to conclude that SmartSkin would teach a skilled artisan the foresight to realize Apple's desired solution when the SmartSkin authors conceded that they did not know how to accomplish a multitouch screen with transparent electrodes. In the "Future Work" section, the SmartSkin authors muse that such a combination is possible, but they lacked the know-how to implement the very technology Apple sought:

> This work is still *at an early stage* and *may develop in several directions*. For example, interaction *using multiple fingers* and shapes *is a very new area of human-computer interaction*, and the interaction techniques described in this paper are just a few examples. *More research is needed*, in particular, focusing on careful usability evaluation.

J.A. 13603 (emphases added). In light of the clearly stated uncertainty expressed by the SmartSkin authors that they could achieve a transparent touchscreen and that experimentation was still necessary to pursue the desired result, it was error to rely on SmartSkin to demonstrate that Apple's invention was a "predictable solution" or "an anticipated success." *Rolls-Royce, PLC v. United Techs. Corp.*, 603 F.3d 1325, 1339 (Fed. Cir. 2010).

I note with great interest that the majority, in its anticipation discussion, recognizes that the SmartSkin authors "had not achieved a touchscreen employing transparent electrodes." Maj. Op. 12. In discussing the disparities between the teachings in SmartSkin and those in the '607 Patent, the majority goes on to observe that SmartSkin provides "no disclosure that the authors had achieved a transparent touch screen and the record does not indicate that it would have been routine to do so. Nor is there any disclosure in SmartSkin that the matrix of ITO electrodes would have created the "transparent . . . layer[s] recited in claim 10." Maj. Op. 12. The majority's anticipation discussion supports a finding of nonobviousness by pointing out that the prior art authors did not know how to achieve a transparent touchscreen and acknowledging that the skilled artisan would have numerous design decisions to make and/or obstacles to overcome even after consulting the prior art. While the type of hope discussed in SmartSkin can be said to drive science, it should not without caution be embraced as an impediment to actual innovation.

Obviousness is not shown when prior art gives only "general guidance as to the particular form of the claimed invention or how to achieve it." *In re Rosuvastatin Calcium Patent Litigation*, 703 F.3d 511, 518 (Fed. Cir. 2012) (quoting *In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988)). In this case, SmartSkin does not amount to clear and convincing evidence because the prior art references lack satisfactory guidance as to *how* to transform the

screen of a handheld device into an interactive surface reacting to simultaneous multiple touches of a user's fingertips. Contrary to the ITC's conclusion that the asserted claims amount to no more than mechanical rearrangement of known pieces, the evidence supports that Apple, after identifying a problem pervading the prior art, succeeded in forging through obstacles to develop the solution. *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1377 (Fed. Cir. 2012) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966)). Because I believe that the record compels a legal conclusion that the asserted claims are not obvious, I dissent from the decision to remand the issue back to the ITC.

IV.

In finding that the ITC erred in assessing whether the asserted claims were obvious, the majority focuses on the objective evidence of nonobviousness, often referred to as "secondary considerations." *See Graham*, 383 U.S. at 36. The majority correctly points to the ITC's failure to follow precedent and reach an obviousness conclusion after weighing all evidence on both sides. Maj. Op. 15. I agree with the majority that the ITC erred in not analyzing objective evidence of industry praise, copying, and commercial success. I write separately on this issue to express my view that an invention's recognition in the related industry and its success in the marketplace, along with the other *Graham* factors, could constitute strong evidence of innovation which could negate an obviousness finding.

Objective evidence of secondary considerations of patentability are essential components of our obviousness inquiry. *Power Integrations, Inc. v. Fairchild Semiconductor Int'l., Inc.*, 711 F.3d 1348, 1356 (Fed. Cir. 2013) (citing *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litigation*, 676 F.3d 1063, 1076–79 (Fed. Cir. 2012)). This is especially true in this modern

day of nanotechnology where what may be viewed as a mere incremental step could constitute a great leap in innovation. In order to protect against the prejudice of hindsight bias, courts make factual findings as to factors such as copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention. *Power Integrations*, 711 F.3d at 1356 (citing *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998) (collecting cases)). I emphasize that objective evidence of nonobviousness, such as that gleaned from the patented product's role in the marketplace, is the indicia of the innovation principle upon which rests our system of patents. A major problem I detect in conclusions reached under § 103 is that objective evidence of nonobviousness is too often treated as "*secondary* considerations." In my view, objective evidence of nonobviousness is objective indicia of innovation. We must not lose sight that a patent, presumed valid, commemorates an inventor's achievement that entitles her to full and equal consideration of all evidence before a conclusion on the issue of obviousness is reached.

Our patent laws are designed to foster optimal incentives for innovation, yet too often the genius of an invention is dismissed by combination of known elements viewed through glasses of hindsight. Our cases highlight that inventive contribution often "lies in defining the problem in a new revelatory way." *Mintz*, 679 F.3d at1377; *Uniroyal, Inc. v. Rudkin–Wiley Corp.*, 837 F.2d 1044, 1051 (Fed. Cir. 1988) ("That which may be made clear and thus 'obvious' to a court, with the invention fully diagrammed and aided by experts in the field, may have been a breakthrough of substantial dimension when first unveiled."). I encourage courts handling patent infringement matters to treat evidence corresponding to the

factors identified in *Graham* as strong, if not the best, evidence of innovation—*i.e.*, the manner in which the industry and the marketplace responded to the disclosure in a patent.

Here, the ITC succumbed to the bias of hindsight as the record bears significant objective evidence that Apple's patent was innovative. As a result, the Administrative Law Judge and the ITC were "misled by improper 'combination' notions."[6] *Custom Accessories, Inc. v. Jeffrey-Allan Industries, Inc.*, 807 F.2d 955, 960 (Fed. Cir. 1986).

As the majority aptly points out, *Time Magazine* named the iPhone the 2007 "Invention of the Year," and the publication heralded the touchscreen as a "powerful illusion that you're physically handling data with your fingers." J.A. 7483. Similar sentiments were expressed in *Bloomberg Business Week*, with an article titled "Apple's Magic Touch Screen" that specifically refers to Apple's patent application and describes the screen's capability "to react to as many as 15 simultaneous touches" as "impressive." J.A. 7826. These examples—as well as the many others in the record—offer effusive praise relating to the patented invention. Such praise of innovation by the relevant industry weighs against invalidating a patent as obvious. *Power-One, Inc. v. Artesyn Tech. Inc.*, 599 F.3d 1343, 1352 (Fed. Cir. 2010).

Evidence of innovation is also found in the testimony and emails demonstrating that Apple's competitors were copying the claimed technology. *See* Maj. Op. 17. The

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[6] The Administrative Law Judge recognized the patented product's marketplace success but found, among other things, that industry praise, attempts to copy, and commercial success could not overcome the combination of SmartSkin and Rekimoto '033. J.A. 216–17. The ITC adopted the Administrative Law Judge's reasoning.

reported success of the patented feature suggests that Apple's competitors were compelled to ride Apple's coat tails by expending significant effort to determine how the patentee's product worked and then altering their own products to conform to the reverse engineered feature. *Power Integrations*, 711 F.3d at 1369; *Akamai Tech. Inc. v. Cable & Wireless Internet Services, Inc.*, 344 F.3d 1186, 1196 (Fed. Cir. 2003). The ITC failed to address the extent to which copying supports Apple's contention that the claimed touchscreen was integral to its market dominance. These efforts to copy Apple's claimed technology also weigh against a conclusion of obviousness. *See Crocs, Inc. v. ITC*, 598 F.3d 1294, 1311 (Fed. Cir. 2010) ("Copying may indeed be another form of flattering praise for inventive features.").

The evidence in this record is a prime example of why we have repeatedly cautioned against assigning inadequate priority to "secondary considerations." While I agree with the majority's analysis, I discern the record to contain significant objective indicia of innovation, which in my view, is "the most probative evidence of nonobviousness." *Custom Accessories*, 807 F.3d at 960.

* * *

Based on the extensive record in this case, I believe Apple overcame significant complexities to produce a touchscreen with desirable optical properties that accurately detected multiple simultaneous touches. Ultimately, it was Apple—not the prior art inventors—who identified the problem, disclosed the steps explaining how the problem was solved, and then created a marketplace for its contribution. By incorporating the invention in the patented products of the iPhone and iPad, Apple's efforts endowed users around the world with better access to information, more efficient communication, and unparalleled convenience to organize life on the mobile.

For the foregoing reasons, I would reverse the finding that Perski '808 provides adequate written description support for Perski '455 and remand the anticipation case for additional proceedings as to Apple's conception date, and whether, based on that date, Perski '455 qualified as § 102(e) prior art. I also would recognize Apple's technical advances over the SmartSkin reference and find evidence of industry praise, copying, and commercial success dispositive indicators that Apple's claims were innovative and nonobvious. Accordingly, I respectfully dissent.