

# United States Court of Appeals for the Federal Circuit

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INTEGRATED TECHNOLOGY CORPORATION AND  
NEVADA INTEGRATED TECHNOLOGY  
CORPORATION,  
*Plaintiffs-Appellees,*

v.

RUDOLPH TECHNOLOGIES, INC. AND MARINER  
ACQUISITION COMPANY LLC,  
*Defendants-Appellants.*

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2012-1593, -1618

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Appeals from the United States District Court for the  
District of Arizona in No. 06-CV-2182, Chief Judge Roslyn  
O. Silver.

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Decided: November 4, 2013

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LLP, of Cleveland, Ohio, argued for plaintiffs-appellees.  
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Before RADER, *Chief Judge*, CLEVINGER, and MOORE,  
*Circuit Judges.*

MOORE, *Circuit Judge*.

Rudolph Technologies, Inc. (Rudolph) appeals from the district court's judgment that it infringes U.S. Patent No. 6,118,894 ('894 patent). Rudolph challenges the court's denial of its motion for judgment as a matter of law (JMOL) that prosecution history estoppel bars the application of the doctrine of equivalents. Rudolph also challenges the award of damages, the court's determination that this was an exceptional case under 35 U.S.C. § 285, and that Rudolph failed to prove laches. We hold that prosecution history estoppel precludes the application of the doctrine of equivalents and therefore *reverse* the judgment of infringement under the doctrine of equivalents. We also *reverse* the willfulness finding predicated on that judgment and *vacate* the corresponding award of enhanced damages.<sup>1</sup> We *affirm* the award of damages for literal infringement. We *vacate* the award of attorneys' fees and costs and *remand* because we find that the court's exceptional case analysis relied in part on the willfulness finding. Finally, we hold that the court did not abuse its discretion in finding no laches.

#### BACKGROUND

This case relates to inspection equipment for probe cards used to test chips on semiconductor wafers. Probe cards contain structures called probes, whose tips make contact with bonding pads located on the periphery of each chip. The probe tips initially pierce the oxide layer atop the conductive layer of the bonding pad. The probe tips are subsequently moved along the pads to a second position to create a reliable electrical contact, leaving a "scrub mark" on the bonding pad in the process.

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<sup>1</sup> Rudolph also challenges the denial of its motion for JMOL that claim vitiation precludes the application of the doctrine of equivalents and that its defenses to willful infringement were objectively reasonable. Because we hold that prosecution history estoppel precludes the application of the doctrine of equivalents, we need not reach this other issue.

Integrated Technology Corp. (ITC) sued Rudolph for infringement of the '894 patent. The '894 patent discloses a digital viewing system to assess whether probes have become misaligned relative to each other by predicting the length and location of scrub marks. '894 patent, col. 6 ll. 1–5. The system includes a camera under a viewing window that obtains the three-dimensional coordinates of the probe tips in first and second states. *Id.* at col. 15 ll. 1–20. Asserted claim 1 of the '894 patent is representative (emphasis added):

An integrated circuit probe card inspection system  
... comprising: . . .

a window with a flat surface contacted by said probe tip, said viewing system obtaining said digital image through said window *in a first state where said probe tip is driven in contact with said window with a first force*, and in a second state where said probe tip is driven in contact with said window with a second force, said second force being different from said first force . . . .

ITC alleged that two categories of Rudolph products infringe the asserted claims. The first includes products in which the probe tips make physical contact with the viewing window before, or at, the moment an image is taken (pre-2007 products). The second includes three products that obtain a first image when the probe tips are approximately five microns above the viewing window (no-touch products)—ITC alleges that this design infringes by equivalence.

The district court granted summary judgment of literal infringement as to the pre-2007 products. The parties proceeded to trial on three issues: (1) whether Rudolph's literal infringement with the pre-2007 products was willful; (2) whether the no-touch products met the “in a first state where said probe tip is driven in contact with said window with a first force” limitation of the asserted claims; and (3) damages.

The jury returned a verdict of no willfulness as to the pre-2007 products and awarded ITC lost profits of nearly \$7.7 million. The jury found willful infringement under

the doctrine of equivalents by the no-touch products and awarded lost profits of nearly \$7.8 million.

Following the verdict, the court denied Rudolph's motion for JMOL that prosecution history estoppel bars the application of the doctrine of equivalents. The court determined that Rudolph did not prove laches. The court trebled damages for willful infringement. The court also determined that the case was exceptional and awarded ITC attorneys' fees and costs. Rudolph appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

#### ANALYSIS

We review the denial of a motion for JMOL under the law of the regional circuit. *Summit Tech., Inc. v. Nidek Co.*, 363 F.3d 1219, 1223 (Fed. Cir. 2004). The Ninth Circuit reviews the denial of JMOL *de novo*. *Hangarter v. Provident Life & Accident Ins. Co.*, 373 F.3d 998, 1005 (9th Cir. 2004). In the Ninth Circuit, JMOL is appropriate after a jury trial "when a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue." *Id.* (internal quotation marks omitted).

#### I. Infringement Under the Doctrine of Equivalents

##### A. Applicable Law

Prosecution history estoppel prevents a patentee from recapturing through the doctrine of equivalents the subject matter that the applicant surrendered during prosecution. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 734 (2002). It presumptively applies when the applicant made a narrowing claim amendment related to patentability. *Id.* at 736–37.

A patentee bears the burden to rebut the presumptive application of prosecution history estoppel by establishing one of three exceptions by a preponderance of the evidence. First, "[t]he equivalent may have been unforeseeable at the time of the application." *Id.* at 740. Second, "the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question." *Id.* Third, "there may be some other reason suggesting that the patentee could not reasonably be expected to have described the [equivalent]." *Id.* at 740–

41. Whether a patentee has rebutted the presumption is a question of law that we review *de novo*. *Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1376 (Fed. Cir. 2005).

#### B. Application of Prosecution History Estoppel

As originally filed, claim 1 recited in relevant part only “a window with a flat surface contacted by said probe tip.” The Examiner rejected the original claim as indefinite under 35 U.S.C. § 112, paragraph 2, and anticipated under § 102(b) by U.S. Patent No. 4,757,256 (Sato). J.A. 10637, 10640. ITC responded by amending the claim to also recite “in a first state where said probe tip is driven in contact with said window with a first force.” J.A. 10648–49, 10653–56.

The district court concluded that prosecution history estoppel does not preclude a finding of infringement by equivalence. It determined that the original and issued claims “both required contact between the plate and the probe tip,” and therefore held that ITC did not make a narrowing amendment. *Integrated Tech. Corp. v. Rudolph Techs., Inc.*, No. 2:06-cv-2182, ECF No. 546, slip op. at 5 (D. Ariz. July 23, 2012).

Rudolph argues that the court erred as a matter of law by concluding that the amendment was not narrowing. It contends that the equivalent was literally within the scope of the original claim. Rudolph argues that the amendment narrowed the scope of the claim by reciting that the probe tip must be “driven in contact with said window” in both recited states. It argues that prosecution history estoppel presumptively applies because the narrowing amendment was in response to patentability rejections.

Rudolph also argues that ITC cannot satisfy its burden to rebut the presumption of prosecution history estoppel. First, Rudolph argues that the equivalent bears a direct—as opposed to tangential—relationship to the amendment. It contends that, even if ITC did not need to distinguish the prior art on the basis of whether the probe tip and window are in physical contact, it chose to do so. Rudolph argues that the prosecution history does not provide a discernible tangential rationale for the amendment because ITC relied on the difference between the

equivalent and the amended limitation to obtain claim 1's allowance.

Second, Rudolph argues that the equivalent was objectively foreseeable at the time of the amendment because the original claim literally covered the equivalent. Rudolph also contends that the equivalent was not technically unforeseeable at the time of the amendment. It argues that the redesign of its pre-2007 product involved a straightforward software change to regulate the placement of the probe tip above the viewing window when obtaining the image in a first state.

ITC responds that the doctrine of equivalents applies. It argues that the court correctly held that the amendment was not narrowing. ITC contends that the original claim implied measuring the probe tip at two different points of actual physical contact with the viewing window. It argues that the amendment merely expressed that implication, and relies on the specification's reference to the probe tip's first position as the location where the tip "would initially contact the video window." '894 patent, col. 15 l. 4.

Even if its amendment was narrowing, ITC argues that it rebutted any presumption that prosecution history estoppel applies. First, it contends that the amendment bore only a tangential relationship to the equivalent. ITC argues that the prior art cited during prosecution failed to disclose either taking two images of the probe tip or taking an image of the probe tip at the point where it would initially contact the viewing window. It contends that the amendment therefore distinguished the prior art solely on the basis of obtaining two images of the probe tip at different positions. ITC thus argues that it did not distinguish the prior art based on the invention requiring physical contact between the probe tip and the viewing window.

Second, ITC argues that the equivalent was objectively unforeseeable at the time of the amendment. It contends that Rudolph developed its own commercial no-touch technology after considerable effort and expense. In support, ITC argues that Rudolph obtained a patent on its no-touch technology based on an application that was

filed seven years after the amendment. It also contends that the district court found that the specification of the '894 patent does not disclose the no-touch equivalent, and therefore ITC could not have originally claimed the equivalent.

As an initial matter, we agree with Rudolph that prosecution history estoppel presumptively applies because the amendment narrowed the scope of the original claim in response to patentability rejections. By its plain language, the amendment added that there must be two different forces that drive the probe tip in contact with the viewing window in two separate states. Accordingly, we hold that ITC surrendered the territory between the original and issued claims, including the equivalent.

The remaining question is whether ITC met its burden of proving that an exception to prosecution history estoppel applies. We hold that it has not, and therefore prosecution history estoppel bars the application of the doctrine of equivalents.

### 1. Tangential Relation

The tangential relation exception is “very narrow.” *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 480 F.3d 1335, 1342 (Fed. Cir. 2007). We ask “whether the reason for the narrowing amendment was peripheral, or not directly relevant, to the alleged equivalent.” *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1369 (Fed. Cir. 2003) (en banc). “[A]n amendment made to avoid prior art that contains the equivalent in question is not tangential.” *Chimie*, 402 F.3d at 1383 (quoting *Festo*, 344 F.3d at 1369). “It does not follow, however, that equivalents not within the prior art must be tangential to the amendment.” *Id.*

The tangential relation inquiry “focuses on the patentee’s objectively apparent reason for the narrowing amendment,” which “should be discernible from the prosecution history record.” *Festo*, 344 F.3d at 1369 (internal citations omitted). For example, in *Felix v. American Honda Motor Co.*, we rejected the patentee’s argument that a limitation was tangential because he had expressly relied on a second limitation to distinguish prior art during prosecution. 562 F.3d 1167, 1184 (Fed. Cir.

2009). We found that the patentee “could easily have simply amended” the original claim to recite only the non-tangential limitation, yet he chose to recite both. *Id.*

Here, a tangential rationale for the amendment is not objectively apparent from the prosecution history. As the Examiner observed when rejecting the original claim, Sato discloses “a surface contacted by a probe.” J.A. 10640. It may be that ITC did not need to surrender a lack of physical contact between the probe tip and window in either state to overcome Sato. The dispositive fact is that ITC chose to do so.

In response to the Examiner’s patentability rejections, ITC explained that the invention generally included a preferred embodiment in which “a video camera . . . inspects the position of each probe tip *as the probes are engaged in contact with* the flat surface of a window.” J.A. 10652 (emphasis added). It also stated that, “[i]n another embodiment, the video camera provides a digital image of a *probe contacting the surface of the window* in [a first and second state] where *the probe tip is driven in contact* [with two different forces].” *Id.* (emphases added). ITC expressly stated that the prior art did not “teach or suggest such features,” without limiting which features it meant. J.A. 10653.

To distinguish the amended claim, in particular, from Sato, ITC stated that the claim “calls for the viewing system to obtain a digital image of the probe tip . . . in [first and second states in which] said probe tip *is driven in contact with* said window.” J.A. 10656 (emphasis added). ITC also told the Examiner that the aspect of the invention at issue was “best exemplified” by Figure 6(a), *id.*, which discloses an embodiment where the probe tip is in the “zero overdrive position,” ’894 patent, col. 15 ll. 5–6. That statement, however, does not establish a tangential rationale because “zero overdrive” still encompasses physical contact between the probe tip and the window.

ITC again relied on contact between the probe tip and window in responding to a subsequent rejection based on different prior art. It stated that “[t]he claims of the present invention are directed towards predicting . . . the movement . . . of probe tips . . . *after initial contact* with



the bonding pad.” J.A. 10815 (emphasis in original). ITC reiterated that “[i]n the context of the specific language of the claims, [the claims] each recite that the probe tip is driven at two different forces or overdrives . . . *after* contacting a window . . . .” *Id.* (emphasis added).

ITC’s representations convey to the public that it was relying on physical contact to overcome the prior art. The public is entitled to rely on those representations. Whether ITC’s interpretation of the prosecution history is plausible is irrelevant. It must prove by a preponderance of the evidence that, based on the prosecution history, the “objectively apparent reason for the narrowing amendment” was only tangentially related to the equivalent. *Festo*, 344 F.3d at 1369. We hold that it has not met that burden.

## 2. Foreseeability

The patentee may rebut the application of prosecution history estoppel by establishing that the equivalent would have been objectively unforeseeable to one of ordinary skill in the art at the time of the amendment. *Festo*, 344 F.3d at 1369; *Honeywell Int’l, Inc. v. Hamilton Sundstrand Corp.*, 523 F.3d 1304, 1313 (Fed. Cir. 2008). Technology developed after an amendment is not necessarily objectively unforeseeable. *Festo*, 344 F.3d at 1369.

We agree with Rudolph that ITC has not proven that the equivalent was objectively unforeseeable. The no-touch products obtain an image in a first state when the probe tip is five microns above the viewing window, and in a second state when the probe tip touches the window. Accordingly, the no-touch products literally satisfy the original claim’s limitation of “a window with a flat surface contacted by said probe tip.” When the patentee “originally claimed the subject matter alleged to infringe but then narrowed the claim in response to a rejection, he may not argue that the surrendered territory comprised unforeseen subject matter.” *Festo*, 535 U.S. at 733–34. That principle controls in this case regardless of when Rudolph developed its no-touch products.

Moreover, the record does not demonstrate that the equivalent is the innovative aspect of Rudolph’s patented

no-touch products. We hold that ITC did not prove that the equivalent was objectively unforeseeable.

ITC's argument that literal infringement by the no-touch products is an alternative basis to affirm the judgment is without merit. Substantial evidence supported the jury's verdict of no literal infringement by these products. *See, e.g.*, J.A. A9879–80, 9676, 9894–95, 9903 (testimony by Rudolph witnesses that probe tips in the no-touch products do not physically contact the viewing window in the first state); J.A. 14310 (product manual stating that “[s]ystem . . . captures images at both the no touch and overtravel positions”). We will not upset that verdict.

\* \* \*

We hold that ITC's narrowing amendment during prosecution surrendered the equivalent from the scope of the asserted claims and that prosecution history estoppel bars the application of the doctrine of equivalents. We thus reverse the denial of Rudolph's motion for JMOL that its accused no-touch products do not infringe under the doctrine of equivalents. Because the finding of willfulness was predicated on that finding of infringement, we also reverse it and vacate the corresponding award of treble damages.

## II. Damages for Literal Infringement

The jury's determination of the amount of damages is an issue of fact that we review for substantial evidence. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1310 (Fed. Cir. 2009). We uphold the jury's finding unless “the amount is grossly excessive or monstrous, clearly not supported by the evidence, or based only on speculation or guesswork.” *Id.* (internal quotation omitted).

Rudolph argues that we should vacate the award of lost profits as to the pre-2007 products held to literally infringe. It argues that its damages expert testified at trial that, if the no-touch products did not infringe, they would be noninfringing alternatives. Rudolph argues that the jury's award of lost profits for the pre-2007 products was based on the erroneous premise that the no-touch products could not be noninfringing alternatives.

We agree with ITC that substantial evidence supported the jury's general verdict award of lost profits for literal infringement. ITC proffered a two-supplier theory of lost profits that was independent of the existence of noninfringing alternatives. J.A. 7231; *see also State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1578 (Fed. Cir. 1989) ("In the two-supplier market, it is reasonable to assume, provided the patent owner has the manufacturing and marketing capabilities, that it would have made the infringer's sales."). The jury could have relied on the two-supplier theory, and accordingly we uphold the award of lost profits for literal infringement.

### III. Exceptional Case Finding Under 35 U.S.C. § 285

A district court may award reasonable attorney fees to a prevailing party in a patent case if it determines that the case is exceptional under § 285. *MarcTec, LLC v. Johnson & Johnson*, 664 F.3d 907, 915 (Fed. Cir. 2012) (citation omitted). The court must first determine whether the prevailing party has proved by clear and convincing evidence that the case is exceptional, which we review for clear error. *Id.* at 915–16. Next, the court must determine whether an award of fees is justified, which we review for abuse of discretion. *Id.* at 916.

In finding the case exceptional, the court cited "Rudolph's conduct during this litigation and the willfulness finding" as "ample support." *Integrated Tech. Corp.*, No. 06-2182, ECF No. 546, slip op. at 17. The court stated the award of fees and costs was justified "based on the entirety of the record." *Id.* It explained that "Rudolph had no serious defense to the pre-2007 infringement allegations, refused to acknowledge that reality, and the jury determined Rudolph's post-2007 conduct constituted willful infringement." *Id.*

Rudolph argues that we should reverse the district court's exceptional case finding and vacate the corresponding award because they were based on the erroneous willfulness finding and a mischaracterization of its litigation conduct. It argues that the district court never held that Rudolph's misconduct alone was sufficient to support the award of fees and costs.

ITC responds that the finding of misconduct is sufficient to support the exceptional case determination. It also argues that the award was justified in light of Rudolph's litigation misconduct, which ITC contends is an indication that Rudolph lacked a good faith basis for its defenses to literal infringement.

We agree with Rudolph that the court's analysis depended in part on the finding of willfulness. Indeed, the court's repeated references to Rudolph's litigation conduct "and" the willfulness finding inextricably link both to the exceptional case determination. Accordingly, we vacate the court's finding of an exceptional case and the corresponding award of attorneys' fees and costs.

#### IV. Laches

Laches is an equitable defense for which the accused infringer must prove that: (1) the patentee's delay in bringing suit was unreasonable and inexcusable, and (2) the alleged infringer suffered material prejudice attributable to the delay. *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1028 (Fed. Cir. 1992) (en banc). We review a district court's determination about laches for an abuse of discretion. *Id.*

The district court determined that Rudolph did not prove laches based on its finding that ITC did not unreasonably delay filing suit. The court also determined that any purported delay did not prejudice Rudolph because the no-touch design it allegedly could have developed earlier was nevertheless found to infringe under the doctrine of equivalents.

Rudolph argues that we should vacate the court's determination because it focused on the prejudice prong and gave only cursory treatment to the unreasonable delay prong. It argues prejudice from ITC's delay because it contends that it could have redesigned its pre-2007 product sooner and at lower cost had ITC filed suit sooner.

We agree with ITC that there was no clear error in the district court's finding of no unreasonable delay. Therefore, Rudolph's arguments are irrelevant, and we affirm the determination of no laches.

CONCLUSION

We have considered the remainder of the parties' arguments and do not find them persuasive.

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

COSTS

No costs awarded to either party.