United States Court of Appeals for the Federal Circuit

03-1214

SUMMIT TECHNOLOGY, INC.,

Plaintiff-Appellant,

v.

NIDEK CO., LTD., NIDEK, INC.,
and NIDEK TECHNOLOGIES, INC.,

Defendants-Appellees.

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Appealed from: United States District Court for the District of Massachusetts

Senior Judge Edward F. Harrington

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DECIDED: March 26, 2004

Before SCHALL, BRYSON, and LINN, Circuit Judges.

LINN, Circuit Judge.

Summit Technology, Inc. ("Summit") appeals from the entry of judgment as a matter of law of non-infringement of all asserted claims of its U.S. Patents Nos. 4,941,093 ("the Marshall '093 patent") and 4,973,330 ("the Azema '330 patent"), entered by the United States District Court for the District of Massachusetts in favor of defendants Nidek Co., Ltd., Nidek, Inc., and Nidek Technologies, Inc. (collectively "Nidek"), following a jury verdict that found the asserted claims of both patents literally infringed. Summit Tech., Inc. v. Nidek Co., No. 98-CV-12611-EFH, 2002 WL 31844693 (D. Mass. Dec. 19, 2002) ("JMOL Order"). Because Summit failed to present sufficient evidence to support the jury's verdict that Nidek infringed either the Marshall '093 patent or the Azema '330 patent, we affirm.

BACKGROUND

A. The Patents in Suit

The patents in suit are the Marshall ’093 and Azema ’330 patents, which are directed to laser eye surgical apparatuses and techniques to correct vision problems. These patents are owned by Summit and cover basic aspects of Summit’s LASIK or PRK laser eye surgery technology.

The human eye processes light reflected from objects, permitting a person to see those objects. Light enters the eye through the cornea or outer layer of the eye, is focused by the cornea and the lens, and then is detected by the retina. The eye’s light focusing function is substantially affected by the cornea. Refractive errors of the eye, including a misshapen cornea or a visual axis of improper length, can cause vision problems such as myopia or astigmatism.

Over the years, doctors have devised various surgical methods for directly reshaping the cornea to correct refractive errors of the eye as an alternative to external corrective lenses. See Marshall ’093 patent, col. 2, ll. 4-15. In the early 1980s, doctors began experimenting with excimer lasers to reshape the cornea and correct vision problems. See id. at col. 1, l. 64 – col. 2, l. 4. Excimer lasers use pulses of light to precisely remove corneal material in a process of vaporization called ablation. Each pulse of light has characteristic parameters, such as wavelength, energy, shape, and size. The energy per unit area—the energy of a laser pulse divided by the size of the light spot on the cornea—is directly related to the depth of corneal material ablated.

The Marshall ’093 patent issued to Summit on July 10, 1990, and covers systems and methods for removing different amounts of corneal material in different areas to correct refractive vision problems. This technique is referred to as differential ablation. Of the asserted claims of the Marshall ’093 patent found to be infringed, claims 1, 15, and 25 are independent. Claim 1 is a representative apparatus claim and recites, with the disputed term underlined:

1. A laser system for eroding a surface, said laser system comprising:

laser means for generating pulses of laser light along a beam path at an energy level, such that the pulses can be absorbed at a surface to induce photoablation;

support means for aligning a surface relative to the laser means; and

beam dimension control means disposed along said laser beam path, including optical means for optically varying an area on the surface to which the pulses of laser energy are delivered while maintaining a substantially constant energy per unit area during each pulse.

Marshall '093 patent, col. 24, ll. 15-29 (emphasis added). The other two independent claims, claims 15 and 25, are method claims with similar limitations. The limitations of claims 15 and 25 corresponding to the "beam dimension control means" of claim 1 are nearly identical and not separately discussed by the parties.

In construing the disputed "beam dimension control means" limitation as a means-plus-function limitation subject to 35 U.S.C. § 112, ¶ 6, the district court stated:

The function of this limitation is, using optical component(s) in the path of the laser beam, to vary an area on the surface to which pulses from the laser are delivered but, at the same time, to have each pulse delivered to the surface have substantially the same energy per unit area. Pulses delivered to the surface have substantially the same energy per unit area if they each ablate approximately the same depth of material. There are a number of "beam dimension control" and "optical" means described in the patent which perform or assist in performing this function . . . including a variable aperture iris diaphragm.

Summit Tech., Inc. v. Nidek Co., No. 98-CV-12611-EFH, slip op. at 2 (D. Mass. June 25, 2002) ("Claim Construction Order").

The Azema '330 patent issued on November 27, 1990, and was later acquired by Summit. Of the asserted claims of the Azema '330 patent found to be infringed, only claim 21 is independent. Claim 21 recites, with the disputed term underlined:

21. A surgical apparatus useful in performing in situ opthamological operations to optimize the curvature of the anterior surface of an area of the cornea of an eye, having an optical axis comprising:

(a) a light source having a wavelength in the ultraviolet range, said light source being capable of effecting photochemical decomposition of corneal material;

(b) means for selecting out of the light produced by said light source, a portion of light which is essentially unidirectional in nature, whereby a beam of light having an outer portion and a center is formed;

(c) means for focusing said beam of light onto the anterior surface of a patient's cornea, whereby a light spot having an area a configuration [sic] is formed, the area of said light spot having a maximum area at least as large as the area of the cornea desired to be operated upon, whereby within the area of the corneal surface impinged by said light spot, ablation of a portion of the corneal material occurs by means of photochemical decomposition, said ablation being time-dependent, whereby, the longer a

particular portion of the cornea surface is impinged by said light spot the greater the amount of corneal material ablated; and,

(d) means for changing the configuration of said light spot, whereby size or shape of said light spot may be varied or a portion of said light spot may be obscured such that, as a function of time, varying portions of the cornea surface may be made to receive varying amounts of total photoradiant energy, whereby a lenticular lamina of cornea material having a smooth anterior surface may be removed by ablation, thereby locally adjusting the radius of curvature of the cornea surface.

Azema '330 patent, col. 11, ll. 14-51 (emphasis added).

In construing the disputed "means for focusing" limitation of the Azema '330 patent as a means-plus-function limitation subject to 35 U.S.C. § 112, ¶ 6, the district court stated:

The "function" of this limitation is to focus the beam to direct a spot of light onto the front surface of the cornea. The area of the spot is at least as large as the area of the cornea one wishes to operate upon. The "means" structure described in the patent specification for performing this function is a lens.

Claim Construction Order, slip op. at 4.

B. Proceedings Below

Nidek is a competitor to Summit and a manufacturer of excimer laser eye surgical devices, including the EC-5000 Excimer Laser System ("EC-5000"). Summit filed suit against Nidek on December 28, 1998, alleging that Nidek's EC-5000 infringed certain claims of the patents in suit. Nidek counterclaimed, alleging that the patents in suit were invalid and not infringed.

On June 21, 2002, the parties jointly moved for the entry of a unified claim construction order that incorporated a claim construction order from a related case in the District of Delaware, as well as modifications previously made by the Massachusetts district court and correction of a typographical error. On June 25, 2002, the district court adopted the parties' proposed order. Claim Construction Order, slip op. at 4.

After a twelve-day trial, the jury found that Nidek infringed all claims asserted by Summit, namely claims 1, 3, 15, 17, 25, 27, 28, 29, and 30 of the Marshall '093 patent, and claims 21, 22, 24, 25, and 27 of the Azema '330 patent. The jury further found that the Marshall '093 patent was not invalid as anticipated. The jury awarded $14.832 million in lost profit damages, $2.397 million in reasonable

royalties, and found Nidek's infringement willful.

Following the verdict, Nidek filed a renewed motion for judgment as a matter of law, asking the district court to overturn the jury verdict of infringement and willfulness. Nidek did not challenge the underlying claim construction or the jury's validity verdict. On December 19, 2002, the district court granted Nidek's motion on the ground that there was no substantial evidence to support the jury's verdict that Nidek infringed either the Marshall '093 or the Azema '330 patent. JMOL Order, 2002 WL 31844693, at *15. The district court subsequently entered judgment of non-infringement for Nidek pursuant to its grant of judgment as a matter of law. Summit Tech., Inc. v. Nidek Co., No. 98-CV-12611-EFH (D. Mass. Dec. 20, 2002).

Summit appeals only the district court's judgment as a matter of law that Nidek did not infringe the patents in suit. The parties principally dispute whether substantial evidence supported the jury's verdict of infringement. Nidek conditionally cross-appealed, challenging the jury's findings of infringement as being based on flawed claim construction rulings. Before filing its brief, and consistent with Bailey v. Dart Container Corp. of Michigan, 292 F.3d 1360, 1362 (Fed. Cir. 2002), Nidek stipulated to the dismissal of its cross-appeal, properly asserting its claim construction argument as an alternate ground in support of the non-infringement judgment.

We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

A. Standard of Review

The grant or denial of a motion for judgment as a matter of law is a procedural issue not unique to patent law, reviewed under the law of the regional circuit in which the appeal from the district court would usually lie. Riverwood Int'l Corp. v. R.A. Jones & Co., Inc., 324 F.3d 1346, 1352 (Fed. Cir. 2003); BBA Nonwovens Simpsonville, Inc. v. Superior Nonwovens, LLC, 303 F.3d 1332, 1336 (Fed. Cir. 2002). The First Circuit reviews the district court's grant of judgment as a matter of law de novo.

Espada v. Lugo, 312 F.3d 1, 2 (1st Cir. 2002). "In reviewing the district court's ruling, we apply the same standards as the district court, meaning that we examine the evidence and all fair inferences in the light most favorable to the plaintiff and may not consider the credibility of witnesses, resolve conflicts in testimony, or evaluate the weight of the evidence." Guilloty Perez v. Pierluisi, 339 F.3d 43, 50 (1st Cir. 2003) (citations and quotation marks omitted). "[I]f the non-moving party has the burden of proof in the underlying case, that party must have presented 'more than a mere scintilla of evidence in its favor' to withstand judgment as a matter of law." Id. (quoting Invest Almaz v. Temple-Inland Forest Prods. Corp., 243 F.3d 57, 76 (1st Cir. 2001)). Because Summit had the burden of proving infringement at trial, Summit must have presented more than a mere scintilla of evidence of Nidek's infringement of each patent to uphold the respective jury verdicts of infringement.

B. Analysis

The question before us is whether the district court, following a jury verdict of infringement, erred in granting Nidek's renewed motion for judgment as a matter of law and in concluding that Nidek did not infringe either the Marshall '093 or the Azema '330 patent.

We observe that juries, in considering the evidence at trial, are required to fully consider and weigh all of the evidence presented at trial. See, e.g., Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1569 (Fed. Cir. 1992) ("[A] reasonable jury [will] have assessed the credibility of witnesses, considered and weighed the evidence presented by both sides, and applied the law in accordance with the court's instructions."). Likewise, courts reviewing a jury verdict on a motion for judgment as a matter of law are required to review all of the evidence presented at trial. Reeves v. Sanderson Plumbing Prods., Inc., 530 U.S. 133, 150 (2000) ("[I]n entertaining a motion for judgment as a matter of law, the court should review all of the evidence in the record." (emphasis added)). This requires an examination not merely of isolated snippets of testimony or abbreviated excerpts from documentary evidence divorced from the context in which they appear, but of all relevant evidence on which the jury verdict may have been based.

1. The Marshall '093 Patent

The parties dispute whether substantial evidence supports the jury's finding that Nidek infringed the "beam dimension control means" limitation of the Marshall '093 patent. The district court construed the "beam dimension control means" limitation as a means-plus-function limitation subject to 35 U.S.C. § 112, ¶ 6. The district court's claim construction stated in relevant part:

> The function of this limitation is, using optical component(s) in the path of the laser beam, to vary an area on the surface to which pulses from the laser are delivered but, at the same time, to have each pulse delivered to the surface have substantially the same energy per unit area. Pulses delivered to the surface have substantially the same energy per unit area if they each ablate approximately the same depth of material.

Claim Construction Order, slip op. at 2. The district court further clarified that "each claim [of the Marshall '093 patent] requires that as the area of the cornea exposed to the laser pulses changes (i.e., as the area of exposure 'varies'), the energy per unit area of each pulse that hits the eye must also remain 'substantially the same.'" JMOL Order, 2002 WL 31844693, at *2. To establish infringement under the district court's claim construction, Summit was required to prove that each pulse delivered to the surface in Nidek's EC-5000 device ablated approximately the same depth of corneal material.

The district court entered judgment as a matter of law based on Summit's failure to present evidence that the pulses in Nidek's system ablated approximately the same depth of corneal material as the aperture size varied. Summit argues the district court's judgment was incorrect because it presented substantial evidence of Nidek's infringement in the form of testimony by its expert Dr. Feld, admissions by Nidek's experts, and Nidek's statements to the Food and Drug Administration ("FDA") concerning its EC-5000 Excimer Laser System. Nidek argues the district court properly entered a judgment of non-infringement because Summit failed to present substantial evidence of infringement. Nidek also argues in the alternative that it does not infringe because the individual pulses do not ablate approximately the same depth of corneal tissue because the Gaussian-shaped energy distributions of the pulses ablate a non-uniform depth across each laser pulse. We agree with the district court that judgment as a matter of law of non-infringement is in order, not on the grounds cited by the district court, but on the basis of Nidek's alternative argument.

Because the evidence at trial indicated that the individual laser pulses delivered to the surface of

the eye by Nidek's EC-5000 device have Gaussian- or bell-shaped energy distributions and thus ablate non-uniform depths of corneal tissue, rather than ablating approximately the same depth of corneal tissue as required by the district court's claim construction, we conclude that Summit failed in its burden of proving literal infringement of the Marshall '093 patent.

Nidek correctly points out that Summit failed to produce any data from the accused EC-5000 or any other evidence to establish that the individual pulses delivered to the corneal surface ablate substantially the same depth of corneal material. To the contrary, the evidence presented at trial establishes that the pulses delivered to the surface do not have substantially the same energy per unit area, but instead have a Gaussian-shaped energy density distribution.

Nidek's statements to the FDA concerning the operation of its EC-5000 establish that the individual pulses are Gaussian-shaped. EC-5000 Excimer Laser System, Response to FDA Questions of July 20, 1994 ("FDA Response"). In its FDA submissions, Nidek stated in relevant part:

> In practice, the laser pulse has a rectangular cross section [which] is reduced to a maximum size of 2 mm x 7.5 mm at the surface of the cornea. Because the pulse width is much less than the scanning width and because the energy distribution of the pulse is Gaussian across the pulse width, each pulse ablates an area of the cornea which is determined by the ablation threshold of the cornea (see Appendix 1, Figures 6-8). Ten sequential pulses are emitted as the beam axis is scanned across the cornea in a direction perpendicular to the long dimension of the pulse cross section. Scan timing and pulse rate is set so that successive pulses overlap along the long direction of the rectangle so as to give uniform ablation depth of the corneal surface.

FDA Response at 1 (emphasis added).

On cross-examination, Summit's expert Dr. Feld admitted that the depth of ablation for individual pulses was not substantially the same, but instead created Gaussian- or "crater"-shaped ablation profiles:

> Q. Is it your testimony that Nidek told the FDA that the pulse on the top will create an ablation in the corneal tissue that looks like the crater on the bottom?
>
> A. That is absolutely correct what Nidek told the FDA. I'm just clarifying your question.
>
> Q. Is this crater on the bottom . . . the same crater of uniform depth that Marshall produces?

A. No.

Q. It's not, is it? It's much shallower, is it not, in the tapered portion than at the deepest part, right? Correct?

A. It looks like Marshall is on the one side, then it tapers off on the other side.

Trial Tr. day 4, p. 93, l. 17 – p. 94, l. 3 (emphases added).

Nidek's defense exhibits further emphasize that the energy densities delivered to the cornea, and hence ablation profiles, were not uniform and did not ablate approximately the same depth of material. Based on these exhibits, Dr. Feld admitted on cross-examination that the individual pulses delivered to the surface ablated non-uniform depths of corneal material. Trial Tr. day 4, p. 110, ll. 10-19 (Feld testimony) ("We should explain [that in Defendant's Exhibit 138 diagram displaying energy densities of EC-5000 pulses] the different colors here correspond to different ablation depths . . . . Here you can see, [at] the steepest part, the most fluence of this pulse is in the center, and it falls off at the edges, according to this color coded manner . . . .").

Relying on the same set of Nidek defense exhibits depicting the energy densities of EC-5000 pulses about which Dr. Feld was questioned, Nidek's expert Dr. Oesterlin also agreed that the energy per unit area, and hence the depth of ablation, was not substantially the same throughout the pulse:

Q. Let's look at Defendant's Exhibit 134. Let's explain what this is and contrast this to the prior exhibit?

A. Yes. This is a pulse where the iris diaphragm is wide open now, so the circle is much larger. Much more of the pulse can pass through this iris diaphragm opening.

We see again the center and both rings pass through, but the amount of or the light which passes through this aperture is not constant in energy per unit area.

Q. And does a pulse as illustrated here in Exhibit 134 have substantially the same energy per unit area?

A. No. It does not.

Q. Now, Doctor, if a pulse satisfied the requirements of the Marshall patent Claim 1, what color would we see there?

A. We would see the entire circle in yellow.

Q. What is the significance of seeing one color?

A. The significance of seeing one color is that it is [a, sic] homogenous energy distribution. The pulse has everywhere the same energy intensity.

Trial Tr. day 8, p. 102, l. 14 – p. 103, l. 6 (emphases added).

Summit argues that Nidek's alternative ground for affirming the district court's judgment as a matter of law is flawed because it relates to the energy distribution instead of the energy per unit area specified in the claim. Summit failed to present any evidence at trial to show a meaningful difference between energy density distributions and energy per unit area. Summit's only evidence that it presented at trial in support of this argument is the cross-examination testimony of Nidek's expert Dr. Oesterlin to the effect that the words "profile" and "energy distribution" do not appear in the district court's construction of claim 15 of the Marshall '093 patent. See Trial Tr. day 8, p. 134, l. 21 – p. 136, l. 5. Critically, Summit ignores the second part of the district court's construction of claim 1, which requires that the pulses delivered to the surface of the eye ablate approximately the same depth of material, and failed to present evidence from which a reasonable juror could conclude that each laser pulse ablates a substantially uniform depth of material across the pulse.

Based on the foregoing, we conclude that Summit failed to present more than a mere scintilla of evidence that the individual pulses in Nidek's EC-5000 result in a substantially uniform depth of ablation across each pulse, and thus that Nidek infringed the Marshall '093 patent. The district court's grant of judgment as a matter of law of non-infringement of the Marshall '093 patent is affirmed.

2. The Azema '330 Patent

The parties dispute whether substantial evidence supports the jury's finding that Nidek infringed the "means for focusing" limitation of claim 21 of the Azema '330 patent. Claim 21 states in relevant part:

(c) means for focusing said beam of light onto the anterior surface of a patient's cornea, whereby a light spot having an area a configuration [sic] is formed, the area of said light spot having a maximum area at least as large as the area of the cornea desired to be operated upon . . . .

Azema '330 patent, col. 11, ll. 28-33. In construing the disputed "means for focusing" limitation of the Azema '330 patent as a means-plus-function limitation subject to 35 U.S.C. § 112, ¶ 6, the district court stated in relevant part:

> The "function" of this limitation is to focus the beam to direct a spot of light onto the front surface of the cornea. The area of the spot is at least as large as the area of the cornea one wishes to operate upon. The "means" structure described in the patent specification for performing this function is a lens.

Claim Construction Order, slip op. at 4.

It was undisputed at trial that Nidek's EC-5000 has a lens that focuses the laser beam and directs a spot of light onto the front surface of the cornea. JMOL Order, 2002 WL 31844693, at *8. The parties principally disputed whether Nidek's accused product satisfies the district court's requirement that "[t]he area of the spot is at least as large as the area of the cornea one wishes to operate upon." Both in opposition to Nidek's motion for judgment as a matter of law and on appeal, Summit argues it presented evidence of Nidek's infringement under three separate theories: (1) that the "area of the cornea one wishes to operate upon" is dynamic and changes throughout the procedure; (2) even assuming the "area of the cornea" is static, individual laser pulses are physically combined to form a composite pulse which covers the entire "area of the cornea"; and (3) also assuming the "area of the cornea" is static, Nidek's description of the accused device as a "large-area" or "wide-area" ablation system in its product literature implies that the device necessarily infringes. Specifically, Summit points to testimony by its expert Dr. Feld, admissions by Nidek's experts, Nidek's statements to the FDA, and Nidek's public statements, as evidence of infringement under its theories sufficient to support the jury's verdict of infringement. Nidek responds that the district court properly found that no substantial evidence supports the jury's finding that Nidek literally infringed the Azema '330 patent.

(a) The Area of Operation

Under its first theory, Summit argues that Nidek infringed the "means for focusing" limitation because at small aperture sizes, it is possible for each individual laser pulse to be larger than the light

spot produced on the cornea. JMOL Order, 2002 WL 31844693, at *8. Thus, whenever this occurs, the light spot produced by the pulse is as large as the area that is being ablated at that particular moment of the procedure. Id. This infringement theory is necessarily premised on the assumption that "the area of the cornea one wishes to operate upon" in the district court's claim construction is dynamic, and encompasses the specific area of the cornea that is ablated at any given time during a procedure. Id. In support of this theory, Summit presented direct testimony by Dr. Feld that the area of operation progressively changes throughout the course of the procedure. Trial Tr. day 3, p. 74, l. 21 – p. 75, l. 8. In addition, Summit argues that admissions by Nidek's experts Dr. Oesterlin and Dr. Rapoza are consistent with Dr. Feld's testimony and provide further evidence of Nidek's infringement.

The district court's claim construction highlighted the portion of the claim that recited the function of the "means for focusing" limitation. Both the claim construction and the claim language were submitted to the jury. Trial Tr. day 11, p. 112, l. 16 – p. 113, l. 3. According to the claim construction and the claim language, the function of the "means for focusing" is to focus a beam of light so as to direct a spot of light onto the front surface of the cornea. The claim construction recites that the area of the spot of light "is at least as large as the area of the cornea one wishes to operate upon." The claim language itself states that "the area of said light spot ha[s] a maximum area at least as large as the area of the cornea desired to be operated upon." Azema '330 patent, col. 11, ll. 31-33 (emphasis added). While the district court's claim construction was not explicit, the claim language itself is clear that the "area of the cornea desired to be operated upon" is the frame of reference for determining the "maximum area" of the "light spot." This has nothing to do with the extent of ablation produced by an impinging light spot at any one time during a surgical procedure. Thus, the testimony directed to the variation in character of the light spot as somehow related to the "area of the cornea desired to be operated upon" is misplaced.

The proper infringement inquiry is simply whether the accused device contains a beam of light that is focused by a lens into a spot of light on the cornea, the spot of light having a maximum area at least as large as the area of the cornea to be reshaped by the surgical procedure. The claim language "the area of the cornea desired to be operated upon" is the entire area of the cornea to be treated during

the course of the laser eye surgical operation, not the area undergoing ablation at any one time, as Summit argues.

Summit's argument is premised on the "area of the cornea desired to be operated upon" being dynamic. That premise is misplaced. It is irrelevant whether the light beam is larger than the light spot produced on the cornea at certain points of the procedure. Thus, Dr. Feld's testimony that the area of operation is dynamic is not sufficient evidence to support the jury's verdict that Nidek infringed the Azema '330 patent, nor are the alleged admissions by Nidek's experts Dr. Oesterlin and Dr. Sayano to that effect.

(b) Spatial Combination of Individual Laser Pulses to Form a Composite Beam

Summit contends that even assuming "the area of the cornea one wishes to operate upon" is static and covers the entire area one wishes to operate upon throughout the procedure, Nidek's FDA submissions establish infringement. Specifically, Summit relies on Nidek's statement in a copy of a patent application submitted to the FDA that during scanning, individual "[laser] pulses are combined and a uniform depth of ablation is achieved." Essentially, Summit argues that Nidek's device literally infringes because in the accused device, a series of pulses across the cornea are physically combined and cover "the entire area of the cornea one wishes to operate upon." But the claim language requires the formation of "a light spot . . . the area of said light spot having a maximum area at least as large as the area of the cornea desired to be operated upon." Azema '330 patent, col. 11, ll. 29-33 (emphasis added). Thus, Summit must establish that Nidek's device is capable of creating a single light spot, the maximum area of which is "at least as large as the area of the cornea desired to be operated upon."

The FDA submission and all of Summit's proffered trial testimony concern the net effect of individual and separate laser pulses in an EC-5000 scan to achieve uniform ablation, not the physical combination that Summit urges. None of the witnesses testified that the individual laser pulses in a scan were physically combined to form a single spot of light required by the claim language and the district court's claim construction. At best, the testimony established that the net ablation effect of the individual light spots of each laser pulse covered the entire area of the cornea one wishes to operate

upon.

Summit cites to Dr. Ohtsuki's cross-examination to support its assertion that individual laser pulses are physically combined, but his testimony reveals otherwise:

Q. And it's correct that in the EC-5000, the pulses are combined, isn't it?

A. The problem is in the word "combined", I believe. There are ten pulses in a single scan. The result of those pulses is that a uniform depth is achieved, and that was the meaning in which I answered that question, I believe.

Q. Well, in the EC-5000, those ten pulses in a scan, when you're treating the maximum area you want to ablate, are combined together within a quarter second to cover the entire maximum area you wish to ablate, right?

A. As I said before, with respect to the ten pulses that are illuminated on the cornea, it is the result which is the combination, not the pulses of light which are the combination.

Trial Tr. day 5, p. 93, l. 22 – p. 94, l. 10 (emphasis added).

Summit's expert, Dr. Feld, asserted on direct examination that the pulses were physically, or spatially, combined:

A. . . . In addition, the composite beam of the EC-5000 which is composed of the spatially combined pulses, all of them together, is always as large or larger than the area that is wished to be operated upon.

Trial Tr. day 3, p. 75, l. 25 – p. 76, l. 3. However, Dr. Feld directly contradicted himself, twice admitting the exact opposite on cross-examination:

Q. Now, in the Nidek system, in the Nidek system each pulse is emitted one at a time; correct?

A. That's correct.

Q. A pulse is emitted and then it strikes the eye?

A. Yes.

Q. Second pulse is emitted and strikes the eye?

A. Yes.

Q. They're separate events; correct?

A. Yes.

Trial Tr. day 3, p. 119, ll. 17-25.

Q. And isn't it true, . . . Professor Feld, that in the Nidek system no two pulses ever reach the cornea at the same time?

A. That's correct.

Trial Tr. day 3, p. 126, ll. 22-25. Summit's assertion of a scientifically flawed premise of the physical combination of individual laser pulses cannot be a basis for finding infringement. Because all of the witnesses agreed or admitted at trial that such physical combinations of separate laser pulses were technologically impossible, such testimony cannot provide the "more than a mere scintilla of evidence" needed to support the jury's finding of infringement of the Azema '330 patent.

(c) Description of the Accused Device as a Large- and Wide-Area Ablation System

Summit argues that Nidek's public statements contained in its product literature that its EC-5000 was a wide-area ablation system are tantamount to an admission of infringement of the Azema '330 patent. Essentially, Summit contends that Nidek's references to its accused EC-5000 as a "large-area" or "wide-area" ablation system, coupled with Dr. Oesterlin's testimony, inherently indicate that the EC-5000 is able to cover the "entire area of the cornea one wishes to operate upon" with a single pulse of a laser. JMOL Order, 2002 WL 31844693, at *14. However, Dr. Oesterlin's cross-examination reveals the opposite conclusion:

Q. But your understanding is that wide-area ablation means a single pulse of the laser will cover the entire maximum area you wish to operate upon with the laser; right?

A. That's right.

Q. And you believe that the Marshall patent and the Azema patent are wide-area ablation systems; right?

A. Yes.

Q. And the [Nidek] EC-5000 is, too, is it not?

A. No.

* * *

Q. If we assume that the EC-5000 is a large area ablation system with the definition you have for

that term, that the EC-5000 must create responsive light on the eye as big as the entire area, maximum area you wish to ablate; right?

A. If you make this assumption, yes.

Q. Now, we can make that assumption if we assume that the pulses in a scan are combined together to form a unified beam; right?

A. I already said yesterday that this is not possible and what is combined is the effect of the pulses within one scan.

Trial Tr. day 9, p. 19, l. 14 – p. 20, l. 20 (emphases added). Although Dr. Oesterlin's definition of "wide-area ablation systems" was consistent with the district court's construction, Trial Tr. day 9, p. 19, ll. 14-17, he explicitly stated that Nidek's EC-5000 was not a wide-area ablation system within that definition. Instead, as discussed above, Dr. Oesterlin emphasized that it was physically impossible to combine the light spots from the individual laser pulses. Trial Tr. day 9, p. 20, ll. 15-20. Because the area of the light spots from the individual laser pulses did not cover the entire "area one wishes to operate upon," the evidence does not support a conclusion of infringement by the EC-5000 under the district court's construction.

We have considered the remainder of Summit's multiplicity of arguments based on various snippets of evidence, and conclude that individually and collectively these arguments fail to overcome the evidentiary shortcomings of its infringement case.

Because Summit failed to present "more than a mere scintilla of evidence" that Nidek infringed the Azema '330 patent, the district court's grant of judgment as a matter of law of non-infringement is affirmed.

3. Nidek's Alternative Argument

As an alternative basis to support the judgment of non-infringement of the Marshall '093 patent, Nidek challenges some of the district court's claim construction rulings. In light of our affirmance of the district court's judgment, Nidek's alternative argument is moot and need not be addressed.

CONCLUSION

Because the district court, in a careful and comprehensive analysis, correctly found that Summit failed to present more than a mere scintilla of evidence to support the jury's verdict that Nidek infringed any of the asserted claims of either the Marshall '093 patent or the Azema '330 patent, we affirm the district court's judgment as a matter of law of non-infringement in favor of Nidek.

AFFIRMED