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United States Court of Appeals for the Federal Circuit

02-1035, -1133, -1204, -1205, -1244, -1245, -1250, -1319

TRANSONIC SYSTEMS, INC.,

Plaintiff-Appellant,

v.

NON-INVASIVE MEDICAL TECHNOLOGIES CORPORATION
(doing business as In-Line Diagnostics Corporation),

Defendant-Cross Appellant.

DECIDED: August 26, 2003

Before LOURIE, SCHALL, and PROST, Circuit Judges.

SCHALL, Circuit Judge.

Transonic Systems, Inc. ("Transonic") appeals the September 14, 2001 decision of the United States District Court for the District of Utah granting Non-Invasive Medical

Technologies Corp. ("NMT") summary judgment of noninfringement of United States Patent No. 5,685,989 entitled "Method and apparatus to measure blood flow and recirculation in hemodialysis shunts" (the "'989 patent"). Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). Transonic also appeals the district court's decision to grant NMT's motion to prove-up damages for wrongful enjoinder. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah Feb. 26, 2002). NMT cross-appeals the district court's grant of summary judgment dismissing its affirmative defense and counterclaim of inequitable conduct for material misrepresentations alleged to have occurred during the prosecution of the '989 patent. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). NMT also cross-appeals the district court's decision to deny its bill of costs and its motion for attorneys' fees resulting from the '989 patent infringement suit. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Jan. 8, 2002 & Nov. 21, 2001).

In the case of its suit for patent infringement against Transonic, NMT appeals the June 8, 2001 decision of the district court granting summary judgment of invalidity of United States Patent No. 5,312,550 entitled "Method for detecting undesired dialysis recirculation" (the "'550 patent"). Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). Transonic, as the prevailing party in the '550 patent suit, appeals the district court's decision denying its motion for attorneys' fees and its bill of costs in connection with the suit. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Nov. 21, 2001 & Jan. 8, 2002).

We conclude that, notwithstanding a careful analysis, the district court erred as a matter of law when it held that the terms "calculating" and "determining" are limited to the "use [of] the exact equations defined in the specification of the '989 patent." Consequently, we vacate the

district court's grant of NMT's motion for summary judgment of noninfringement of the '989 patent and remand for a reassessment of literal infringement and infringement under the doctrine of equivalents, based upon a clarification of our previous construction of claims 1, 9, 24, and 32 of the '989 patent. We also vacate the district court's grant of NMT's motion to prove-up damages for wrongful enjoinder, its decision to deny NMT's bill of costs, and its decision to deny NMT's motion for attorneys' fees. However, we affirm the district court's grant of summary judgment dismissing NMT's affirmative defense and counterclaim of inequitable conduct in the prosecution of the '989 patent.

With respect to the '550 patent infringement suit, we conclude that the district court properly granted summary judgment of invalidity of the '550 patent for anticipation. We vacate, however, the district court's decision denying Transonic's motion for attorneys' fees and denying its bill of costs. We remand these issues so that the district court may articulate its reasons for its rulings. Thus, we affirm-in-part, vacate-in-part, and remand.

BACKGROUND

I.

Transonic owns the '989 patent, which is directed to a method and apparatus for measuring blood flow in arterio-venous shunts used in dialysis patients. '989 patent, col. 1, II. 7-10. Shunts are surgically implanted, artificial passages or tubes that serve to connect an artery to a vein. Shunts facilitate the natural flow of blood from the artery to the vein and provide an access point for removal and reentry of blood during dialysis. During the normal operation of a dialysis cycle, untreated blood enters the shunt from an artery. An arterial line carries the blood from the shunt to a dialysis machine, which acts as an artificial kidney by cleaning the blood. The treated blood exits the dialysis machine through a venous line and is reintroduced into the shunt downstream from the arterial line. The treated blood then enters the vein.

Over time, a shunt can become clogged causing the shunt blood flow to slow down and, at times, causing blood to recirculate upstream. Recirculation causes the dialysis procedure described above to become less efficient and more time consuming because the dialysis machine must not only clean the untreated blood, but must also reprocess the recirculated portion of the treated blood. In order to determine when a shunt is excessively blocked and must be repaired or surgically replaced, a doctor must be able to determine the amount of blood flow in the shunt. The '989 patent discloses a method for measuring shunt blood flow.

To measure blood flow in accordance with the '989 patent, the arterial and venous lines of the dialysis machine are reversed from the normal dialysis configuration. '989 patent, col. 4, II. 9-10. An arterial line is placed in a shunt downstream of a venous line. Id. at col. 4, II. 10-13. During operation of the claimed method, blood is removed from the patient's vascular system via the downstream arterial line, taken into the dialysis machine, and returned to the patient's vascular system via the upstream venous line. Id. In the venous line, a physical parameter of the blood is changed to produce a distinguishable blood characteristic in the blood, and the changed blood is introduced into the upstream end of the shunt. Id. at col. 4, II. 13-27. Blood is again removed from the patient's vascular system via the downstream arterial line and taken into the dialysis equipment. Id. A detector located somewhere along the dialysis circuit measures the distinguishable blood characteristic in the removed blood and the measurement is used to calculate shunt blood flow. Id. at col. 4, II. 16-27.

Claim 1 of the '989 patent is representative of the claimed method described above and recites as follows:

1. A process for determining in an arterio-venous shunt blood flow in a cardiovascular circuit, comprising:
delivering blood from a circulating system outside the cardiovascular circuit into an upstream location in an arterio-venous shunt connected in the cardiovascular circuit and carrying a shunt blood flow;
mixing said delivered blood with said shunt blood flow;
removing a portion of the mixed blood from said arterio-venous shunt at a location in the shunt which is downstream from said upstream location and delivering the removed portion of mixed blood to the circulating system;
changing a selected blood parameter in blood flowing in said circulating system to produce a distinguishable blood characteristic in blood which is delivered to the arterio-venous shunt;
measuring the amount of distinguishable blood characteristic in said removed

portion of mixed blood; and
calculating the rate of flow of said shunt blood flow in said arterio-venous shunt
from said measured amount of distinguishable blood characteristic.

'989 patent, col. 8, ll. 34-55.

NMT employs three methods that Transonic accuses of infringing its claimed methods: the Delta H method, the Saline Dilution method, and the Go, No-Go method. In 1998, NMT began marketing a dialysis monitor, the CLM III monitor, which is capable of measuring shunt blood flow in dialysis patients with the Delta H method. This method requires the user to reverse the dialyzer line configuration such that the venous line is upstream in the shunt and the arterial line is downstream. Blood is then taken from the patient and the percentage of red blood cells, or the level of hematocrit, is changed. The changed blood is returned to the shunt through the upstream venous line and once again removed downstream where the hematocrit level is measured to determine flow rate through the shunt. The Saline Dilution method involves reversing the dialysis bloodlines during dialysis and injecting saline into the venous line. The method further includes measuring the optical properties of the blood flowing in the arterial line and calculating the rate of shunt blood flow from those measurements. The third method, the Go, No-Go method, is identical to the Saline Dilution method, except that the user determines whether the shunt blood flow is greater than, equal to, or less than 600 mL/min.

II.

On April 4, 2000, NMT acquired a license under the '550 patent from the owners of the patent, H&H Systems, Inc. and the University of Mississippi. The '550 patent claims a process for detecting recirculation in a shunt of a dialysis patient. The process claimed by the '550 patent is comprised of two steps. The first step requires the injection of a "material . . . having a physical property differing from that of blood," such as saline, into the treated blood before it is returned to the downstream venous end of the shunt. '550 patent, col. 2, ll. 62-64. The second step involves monitoring the blood upstream from the venous tube to detect the "presence of said differing physical property, [and] thereby detect undesired recirculation of freshly dialyzed blood." *Id.* at col. 2, ll. 65-68 & col. 3, ll. 1-3.

Claim 1 of the '550 patent is representative of the claimed invention and recites as follows:

1. In a dialysis process wherein blood is removed from a patient's vascular system and passed through a dialyzer system comprising an inlet arterial line, a dialyzer, and an outlet venous line, said blood being fed via said inlet arterial line to said dialyzer and returned to the patient via said outlet venous line, the improvement comprising:

- (a) injecting a material at an injection point in said dialyzer system, said material having a physical property differing from that of blood; and
- (b) monitoring the fluid in said dialyzer system at a point in said dialyzer system upstream from said injection point for the presence of said differing physical property, to thereby detect undesired recirculation of freshly dialyzed blood from said venous line directly to said arterial line.

'550 patent, col. 2, ll. 55-68 & col. 3, ll. 1-3.

The owners of the '550 patent initially approached Transonic in 1995 alleging that Transonic infringed the '550 patent and offered to grant the company a license. Transonic refused to take a license and instead took the position that the '550 patent was invalid as anticipated by prior art that had not been considered by the Examiner. The owners subsequently approached NMT about taking a license under the '550 patent. NMT rejected the license offer, claiming that the patent was invalid as anticipated under 35 U.S.C. § 102 in light of prior art never considered by the Examiner during prosecution. Two years later, NMT took a license; and under the license agreement, NMT procured the right to sue a potential infringer in order to enforce the '550 patent.

III.

On March 25, 1999, Transonic filed suit against NMT in the District Court for the District of Utah, alleging that NMT infringed its '989 patent. The district court conducted a Markman hearing and construed the claims in an opinion issued December 13, 1999. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99-CV-41 (D. Utah Dec. 13, 1999) ("Transonic I"). On April 18, 2000, NMT filed suit against Transonic in the same district court, alleging infringement of the '550 patent. The '550 patent case was subsequently consolidated with the '989 patent case before the same district court judge. On April 26, 2000, in response to software installations carried out by NMT on its CLM III monitors, Transonic filed a motion for a preliminary injunction to enjoin NMT from operating those monitors in accordance with the Delta H method. Upon finding that Transonic would likely succeed on the merits of its infringement claim and would suffer irreparable harm in the absence of a preliminary injunction,

the district court granted a preliminary injunction to Transonic barring NMT from infringing the '989 patent by employing the Delta H method. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., 127 F. Supp. 2d 1315 (D. Utah 2000) ("Transonic II"). NMT appealed the district court's decision, and on May 29, 2001, we vacated the preliminary injunction award in light of a narrower claim construction and remanded for further proceedings. Transonic Sys., Inc. v. Invasive Med. Tech. Corp., 10 Fed. App. 928 (Fed. Cir. 2001) ("Transonic III").

Subsequently, Transonic moved for summary judgment of invalidity with respect to the '550 patent. In addition, Transonic sought dismissal of NMT's counterclaim for inequitable conduct in the prosecution of the '989 patent. For its part, NMT moved for summary judgment of noninfringement of the '989 patent. On June 8, 2001, the district court granted Transonic's motion for summary judgment of invalidity of claims 1, 2, and 5 of the '550 patent. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). Additionally, the court granted Transonic's motion for summary judgment dismissing NMT's counterclaim of inequitable conduct in the prosecution of the '989 patent. Id. On September 14, 2001, the district court granted NMT's motion for summary judgment of noninfringement of claims 1, 9, 24, and 32 of the '989 patent. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). In so doing, the district court stated: "It is undisputed that NMT's accused methods do not specifically use the exact equations defined in the specification of the '989 patent." Id. On that basis, the court concluded that NMT's methods did not literally infringe the '989 patent. Id.

The district court further concluded that NMT could not be found to infringe under the doctrine of equivalents. Id. The court determined that, during prosecution, Transonic had made a narrowing amendment related to patentability with respect to the claim limitations at issue. Id. Applying the complete bar jurisprudence in place at the time of the disposition, the court

concluded that "no range of equivalents [is] available for the amended claim element." Id. (quoting Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., LTD., 234 F.3d 558, 569 (Fed. Cir. 2000) (en banc)). In light of the district court's conclusion that NMT did not infringe the '989 patent, the court ordered Transonic to pay NMT \$75,000 as a result of having been wrongfully enjoined. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah Feb. 26, 2002).

Subsequently, the district court concluded that the '550 patent suit filed by NMT was not exceptional and denied Transonic's motion for attorneys' fees. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Nov. 21, 2001). Finally, the district court ordered that each party bear its own costs. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Jan. 8, 2002). This appeal resulted. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

ANALYSIS

I. Standard of Review

We review a grant of summary judgment by a district court de novo. Cortland Line Co. v. Orvis Co., 203 F.3d 1351, 1355-56 (Fed. Cir. 2000). Summary judgment is appropriate where the record shows "that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c); Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 247 (1986). A district court may not resolve infringement on summary judgment unless no genuine factual issue remains. Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1265 (Fed. Cir. 2001).

II. Infringement of the '989 Patent

A determination of infringement is a two-step process. "First, the court determines the

scope and meaning of the patent claims asserted. [Second,] the properly construed claims are compared to the allegedly infringing device." Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc) (citations omitted). Step one, claim construction, is an issue of law, Markman v. Westview Instruments, Inc., 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996), that we review de novo, Cybor, 138 F.3d at 1456. Step two, comparison of the claim to the accused device, is a question of fact that requires the patent holder to establish that the accused device includes every claim limitation or its equivalent. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997).

A. Claims 1 and 9 of the '989 Patent

The parties dispute the meaning of the terms in claims 1, 9, 24, and 32 of the '989 patent. We turn first to the construction of claims 1 and 9. Transonic and NMT dispute the meaning of the term "calculating" in the final limitation of claim 1, which recites "calculating the rate of flow of said shunt blood flow in said arterio-venous shunt from said measured amount of distinguishable blood characteristic." '989 patent, col. 8, ll. 53-55. They also dispute the meaning of the term "determining" in the final limitation of claim 9, which recites "determining the rate of patient blood flow in said shunt from the measured amount of said changed parameter."^[1] Id. at col. 9, ll. 34-35. Transonic argues that, based on the language of the claims, these terms should be defined as "calculating shunt blood flow using indicator dilution equations." NMT contends that the terms should be defined to require the use of the exact equations disclosed in the '989 specification. Despite their disagreement about the precise meaning of these two claim terms, Transonic and NMT agree that these terms should be given the same meaning. We therefore discuss claim construction of the term "calculating," but apply our final claim construction to both the terms "calculating" and "determining."

As noted, the preliminary injunction portion of this case has previously been before our court, so we begin with a discussion of our prior holding. In Transonic III, we concluded that the

district court erred when it construed the claim terms "calculating" and "determining" to mean "to determine by mathematical equation." Transonic III, 10 Fed. App. at 933. In reaching that conclusion, we considered the intrinsic record, including the claims themselves, the '989 patent specification, and the prosecution history of the '989 patent, to determine whether the patentee limited the scope of the claims. Based on statements made by the patentee in the specification, we observed that "the '989 patent describes the determination of shunt blood flow with reference to specific equations." Id. We further noted that the specification contains "no description of 'calculating' or 'determining' blood flow that does not require the use of at least one of the disclosed equations" and that there is no indication that "the invention encompasses other methods of 'calculating' or 'determining' blood flow." Id.

We also considered the prosecution history in Transonic III, finding that "the disclosed equations are part of the claimed invention, play an important role in achieving the objects of the invention, and help to distinguish the invention from the prior art." Transonic III, 10 Fed. App. at 934. We concluded that "Transonic disclaimed any interpretations of the terms 'calculating' and 'determining' that do not reflect the stated significance of the disclosed equations to the invention as a whole." Id. In sum, we construed the claim terms "calculating" and "determining" as "requiring the use of at least one of the equations set forth in the specification of the '989 patent." Id.

As an initial matter, NMT contends that we are bound by this prior construction of claims 1 and 9 because it is the law of the case. Conversely, Transonic contends that the preliminary injunction proceedings were by their very nature provisional and that, as such, we are not bound by the claim construction set forth in Transonic III.

Our initial inquiry is whether, on remand, the district court was bound by our claim construction in Transonic III. Generally, the law of the case doctrine prohibits a court from revisiting an issue once it has been decided in pending litigation. Arizona v. California, 460 U.S.

605, 618 (1983) ("The [law of the case] doctrine posits that when a court decides upon a rule of law, that decision should continue to govern the same issues in subsequent stages in the same case."); see also Bio-Technology Gen. Corp. v. Genentech, Inc., 267 F.3d 1325, 1331 (Fed. Cir. 2001) ("BTG's position is contrary to the claim construction that is the law of this case."). The Supreme Court, however, has made clear that findings of fact and conclusions of law made by a court during a preliminary injunction proceeding are not binding on the court during trial. See Univ. of Tex. v. Camenisch, 451 U.S. 390, 395 (1981) (stating that "findings of fact and conclusions of law made by a court granting a preliminary injunction are not binding at trial on the merits"). We have consistently followed the Supreme Court's precedent by holding that a claim construction reached during an appeal from a grant of a preliminary injunction is tentative and is not binding on the district court in subsequent proceedings. Guttman, Inc. v. Kopykake Enters., 302 F.3d 1352, 1361 (Fed. Cir. 2002) ("District courts may engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves."). A district court therefore is at liberty to change the construction of a claim term as the record in a case evolves after a preliminary injunction appeal. Alternatively, a district court may adopt a construction reached by our Court in a preliminary injunction decision. Since the district court was not bound in this case, we also are not bound. We therefore review the court's claim construction under our traditional standard of review for claim construction, de novo. Cybor, 138 F.3d at 1456.

Claim language defines claim scope. SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The terms used in the claims bear a "heavy presumption" that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). Nevertheless, an inventor may use the specification and prosecution history to limit the scope of the claim terms. Watts v. XL Sys., Inc., 232 F.3d 877, 882 (Fed. Cir. 2000). Thus to help determine the proper construction of a patent claim, a court consults the

claims themselves, the written description, and, if in evidence, the prosecution history. Markman, 52 F.3d at 979-80.

Claim 1 of the '989 patent does not limit the term "calculating," except to require that the rate of flow of shunt blood flow be calculated "from said measured amount of distinguishable blood characteristic." '989 patent, col. 8, ll. 34-55. The claim language does not limit "calculating" to the use of any particular type of scientific principle or mathematical relationship. Turning to the specification, we have often stated that "[o]ne purpose for examining the specification is to determine if the patentee has limited the scope of the claims." Watts, 232 F.3d at 882. "[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). In this case, the patentee's statements made in the SUMMARY OF THE INVENTION, and reproduced in pertinent part below, are instructive:

Blood flow, Q, measured by the dilution method (A. C. Guyton Textbook of Medical Physiology, Sixth Edition, p. 287, 1981) is given by:

$$Q=V/S \text{ (Eq. 1)}$$

where V is the amount of injected indicator and S is the area under a dilution curve and is equal to the average concentration of indicator in the blood for the duration of the curve, multiplied by the duration of the curve.

* * *

The change of characteristics is measured by known sensors, such as sound velocity sensors, electrical impedance sensors, optical sensors, thermal sensors, isotope sensors, or the like, and the blood flow relationships are calculated in accordance with the foregoing equations.

'989 patent, col. 1, ll. 56-61 & col. 4, ll. 26-27. As discussed in Transonic III, the specification does not disclose "calculating" or "determining" without the use of one of the disclosed relationships.

During prosecution, an inventor may surrender coverage of material that would otherwise be covered by a claim, but only if the surrender is clear and unmistakable. Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1252 (Fed. Cir. 2000) ("In determining whether there has been a clear and unmistakable surrender of subject matter, the prosecution history must be examined as a whole."). During prosecution of the '989 patent, in response to an Office Action rejecting the pending claims, Transonic identified several "primary features of the invention." Included in these features was "the calculation of shunt blood flow (line blood flow) from the sample via dilution principles as is taught in the present application." As discussed above, the only "calculation . . . via dilution principles" taught in the specification of the '989 patent revolves around the disclosed equations. In the same response, Transonic argued that the disclosed equations are critical to achieving the purpose of the invention and are novel over the prior art. It stated in pertinent part as follows:

The purpose of the invention is to measure shunt (blood line) blood flow, and for this purpose the application sets out the flow relationships which permit calculation of the line blood flow from other measurements. These relationships are not taught in the prior art

Moreover, Transonic distinguished a prior art reference during prosecution by explaining that, "in the present invention[,] shunt flow is calculated from a dialysis flow and a concentration curve measurement." Based upon the claim, the specification, and the prosecution history, we again conclude that Transonic "disclaimed any interpretations of the terms 'calculating' and 'determining' that do not reflect the stated significance of the disclosed equations to the invention as a whole." Transonic III, 10 Fed. App. at 934.

On remand from Transonic III, the district court further construed claims 1 and 9 as requiring the use of "the exact equations defined in the specification of the '989 patent." Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). The court stated: "In light of [the Federal Circuit's] claim interpretation, and because NMT's methods do not use at least one of the '989 patent

equations, there is insufficient evidence that would allow a jury to find that NMT's methods infringe the '989 patent." Id.

The district court rejected Transonic's contention that the claims include equations that are variations of the general equations set forth in the specification, i.e., $Q=V/S$. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). Transonic renews this contention on appeal and argues that the district court went beyond our claim construction to require that NMT's methods use the exact equations disclosed in the specification. Transonic contends that the proper scope of the claims includes those equations that express the same mathematical relationships disclosed in the specification but are tailored to a specific indicator, also disclosed in the specification. Although the district court's reasoning is understandable, we do not think that the term "calculating" is limited to the exact equations disclosed in the '989 patent specification.

The specification discloses the use of several indicators to create a dilution curve as follows:

A dilution curve is obtained by measuring changes in a physical parameter of the blood over a period of time, and plotting the resulting variations. For example, if the blood parameter being measured is sound velocity, the injection of an indicator such as a saline solution, having a different sound velocity than blood, will produce a change in the measured parameter as the indicator passes the sensor location. The indicator dilutes the blood, and produces a sound velocity curve which is a measure of that dilution. Although injection of a saline solution is convenient for producing a measurable change in a blood parameter such as sound velocity, other changes of parameters may also be suitable. Thus, changes in temperature, electrical impedance, optical characteristics, and the like may also be used as indicators to produce dilution curves. For purposes of this disclosure, however, reference will primarily be made to the use of saline solution as the indicator, with resulting changes in sound velocity in the blood being measured to provide a dilution curve.

'989 patent, col. 1, ll. 66-67 & col. 2, ll. 1-17. Equations that embody the mathematical relationships disclosed by the specification, but are modified for a specific indicator, are within

the scope of the claims. It would be improper to read such embodiments out of the claims. Vitronics, 90 F.3d at 1583 ("Indeed, if 'solder reflow temperature' were defined to mean liquidus temperature, a preferred (and indeed only) embodiment in the specification would not fall within the scope of the patent claim. Such an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support, which is wholly absent in this case."). Accordingly, we conclude that the terms "calculating" and "determining" must use at least one of the equations set forth in the specification of the '989 patent, i.e., " $Q=V/S$ ", but that the claims also cover the use of indicators other than saline. In other words, the elements of the equation, "V" and "S", may be altered to account for the characteristics of different indicators, such as saline, temperature, etc., so long as the relationships set forth in the equations in the specification are still expressed.

B. Claims 24 and 32 of the '989 Patent

Claims 24 and 32 were not at issue in the preliminary injunction appeal of Transonic III and must be construed anew. Those claims both include means-plus-function limitations and recite as follows:

24. Apparatus for determining line blood flow in a blood line of a cardiovascular circuit, comprising:

a blood circulating system including a blood dialysis device outside the cardiovascular circuit;

a blood delivery line connectable between said circulating system and an upstream location in a cardiovascular circuit blood line to deliver blood from said circulating system to the blood line so as to mix delivered blood with cardiovascular circuit line blood flow to produce a blood mixture;

a blood intake line connectable between said circulating system and a downstream location in the blood line to draw a portion of said blood mixture into said circulating system;

means for introducing an indicator into said blood delivery line;

an indicator dilution sensor coupled to said blood intake line to measure the concentration of said indicator which is present in said portion of said blood mixture; and

means for calculating, from said measure of concentration, the rate of said line blood flow.

32. Apparatus for determining shunt blood flow in a hemodialysis shunt connected in a cardiovascular system comprising:

indicator dilution sensor means connected to a blood intake line in a hemodialysis blood circulating system adapted to deliver blood through a blood delivery line to an upstream location in a shunt where delivered blood is mixed with shunt blood flow, wherein the circulating system removes blood from a downstream location in the shunt by way of the intake line, and wherein the removed blood is a portion of the delivered blood mixed with blood flow in the shunt;

recording means connected to said indicator dilution sensor means to register the amount of indicator in the removed blood resulting from introducing an indicator into the blood delivery line; and

calculator means connected to said recording means for calculating the rate of flow of said shunt blood flow from said register of the amount of indicator in the removed blood.

'989 patent, col. 10, ll. 29-51 & col. 11, ll. 8-28. The parties dispute the meaning of the "means for calculating" and the "calculating means" limitations.

The word "means" in a patent claim triggers a presumption that the limitation at issue is expressed as a means-plus-function limitation. Personalized Media Communications, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 703 (Fed. Cir. 1998). Since the claim limitations being construed in claims 24 and 32 are "expressed in 'means plus function' language and because [they do] not recite definite structure in support of [their] function[s], [they are] subject to the requirements of 35 U.S.C. § 112, ¶ 6" B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed. Cir. 1997) (citations omitted).

The first step in construing a means-plus-function limitation is to identify the function of the limitation. Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999). The scope of the function in a claim is derived from the claim language itself. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1573-74 (Fed. Cir. 1985). The function of the disputed "means for calculating" term in claim 24 is "for calculating, from said measure of concentration, the rate of said line blood flow." '989 patent, col. 10, ll. 50-51. The function of the disputed "calculator means" term in claim 32 is "for calculating the rate of flow of said shunt blood flow from said register of the amount of indicator in the removed blood." Id. at col. 11, ll. 25-28. The functions both require "calculating." Accordingly, they are also limited by the specification and

the prosecution history to the use of the mathematical principles disclosed in the '989 patent.

C. Literal Infringement of the '989 Patent

Literal infringement requires that a patent holder establish that an accused device includes every claim limitation or its equivalent. Warner-Jenkinson, 520 U.S. at 29. In order for an accused structure to literally meet a 35 U.S.C. § 112, ¶ 6 means-plus-function limitation, the accused structure must either be the same as the disclosed structure or be a section 112, paragraph 6 "equivalent," i.e., (1) perform the identical function and (2) be otherwise insubstantially different with respect to structure.^[2] See Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1267 (Fed. Cir. 1999). Transonic contends that the Delta H method meets the "calculation" limitations of the disputed claims. Transonic further contends that the district court did not consider infringement with respect to the Saline Dilution method and the Go, No-Go method separately from the Delta H method. We vacate the district court's grant of summary judgment of noninfringement of the '989 patent and remand for a determination of infringement based upon the clarification of our previous claim construction for claims 1, 9, 24, and 32 of the '989 patent. We also remand for the district court to consider the Delta H method, the Saline Dilution method, and the Go, No-Go method separately with respect to the asserted claims.

D. Doctrine of Equivalents

On remand from Transonic III, the district court determined that the patentee had amended the terms "calculating" and "determining" in claims 1, 9, 24, and 32 during prosecution and that the amendments were made to distinguish prior art and narrow the claims from their original scope. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). In light of Festo, 234 F.3d at 559, the controlling precedent at the time, the court held that "Transonic is completely barred from asserting the doctrine of equivalents with respect to these claim elements." Id. Festo was

successfully appealed to the Supreme Court, which changed the complete bar standard. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002).

The Supreme Court's Festo decision is an intervening change in controlling law. The Court's holding in Festo "must be given full retroactive effect in all cases still open on direct review and as to all events, regardless of whether such events predate or postdate [the] announcement of the rule." Harper v. Va. Dep't of Taxation, 509 U.S. 86, 97 (1993). We therefore vacate the district court's final judgment on infringement and remand so the district court may consider the doctrine of equivalents in light of the standard articulated by the Supreme Court and in light of our claim construction.

III. Wrongful Enjoinment

Under Federal Rule of Civil Procedure 65(c), a party that has been "wrongfully enjoined" may recover costs and damages incurred as a result of the injunction. Fed. R. Civ. P. 65(c). Recovery of damages for wrongful enjoinder is not an issue that is unique to our exclusive jurisdiction; therefore, the law of the regional circuits governs this issue. Hupp v. Siroflex of Am., 122 F.3d 1456, 1467 (Fed. Cir. 1997). In the Tenth Circuit, a district court's grant of a motion to prove-up damages is reviewed under the abuse of discretion standard. Sierra Club v. Hodel, 848 F.2d 1068, 1097 (10th Cir. 1988).

Transonic challenges the district court's decision to grant NMT's motion to prove-up damages for two reasons. First, Transonic contends that, if we vacate the district court's grant of summary judgment of noninfringement of the '989 patent, we must also vacate the court's decision to grant NMT damages for wrongful enjoinder pending a resolution of infringement on the merits. Second, Transonic contends that the district court provided no explanation for its determination that the amount of damages should be \$75,000 and that therefore we are given no opportunity for meaningful review.

In order to recover for wrongful enjoinder, there must be a resolution of the underlying issues in favor of the enjoined party and the entry of the injunction must have been wrongful. Additionally, the enjoined party may not recover more than the amount of the bond set by the judge who granted the preliminary injunction. The enjoinder in this case was wrongful only if NMT ultimately prevails on its assertion that it does not infringe the '989 patent, and a final judgment of noninfringement is entered. Since we vacate the district court's summary judgment of noninfringement and remand, there is, at this time, no resolution of the issue of infringement on the merits. We therefore vacate the district court's grant of NMT's motion to prove-up damages and remand for further proceedings.

IV. Inequitable Conduct

"In order to prove inequitable conduct in the prosecution of a patent, [the defendant] must have provided evidence of affirmative misrepresentations of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." Dayco Prods., Inc. v. Total Containment, Inc., 329 F.3d 1358, 1362 (Fed. Cir. 2003) (citations omitted). There are two steps to a determination of inequitable conduct. First, the accused infringer must prove by clear and convincing evidence that the information withheld from the United States Patent and Trademark Office ("PTO") or the misrepresentation made to the PTO was material; and second, the accused infringer must prove by clear and convincing evidence that the patentee intended to mislead the PTO. Brassler, U.S.A. I, L.P. v. Stryker Sales Corp., 267 F.3d 1370, 1379 (Fed. Cir. 2001).

Materiality and intent are factual determinations. Brassler, 267 F.3d at 1379. To survive summary judgment, NMT was required to introduce evidence from which a trier of fact could find materiality and intent by clear and convincing evidence. Abbott Labs. v. TorPharm, Inc., 300 F.3d 1367, 1379 (Fed. Cir. 2002). Summary judgment is proper if, drawing all reasonable factual inferences in favor of NMT, the evidence is such that NMT cannot prevail. See ATD Corp. v. Lydall, Inc., 159 F.3d 534, 547 (Fed. Cir. 1998).

On appeal, NMT argues that during prosecution of the '989 patent, Transonic made a material misrepresentation to the PTO when it represented that "complete mixing" was a primary feature of the claimed invention. NMT points to a statement made in a response to an office action dated August 29, 1996 and to internal documents it argues confirm the importance of "complete mixing." NMT argues that, even though the claim elements require only "mixing," Transonic

intended to mislead the PTO into believing that "complete mixing" was a required feature of the invention that imparted novelty to the claimed invention.

Materiality is established when "a reasonable examiner would have considered [the] prior art important in deciding whether to allow the [patent] application" or where the information either establishes "a prima facie case of unpatentability" or "refutes, or is inconsistent with a position the applicant takes." See Dayco Prods., 329 F.3d at 1363; 37 C.F.R. § 1.56 (1992). The district court rejected NMT's arguments regarding materiality. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). In so doing, the court stated that it disposed of the arguments when it found, during claim construction, that the statements in the prosecution history were not sufficient to limit the claim term "mixing" to "complete mixing." Id. The court concluded that, when read in context, the "isolated reference to 'complete mixing' appears to be a careless misstatement," and that "nothing in the prosecution history suggests [that Transonic] . . . intended to impart a limited meaning to the generic term 'mixing.'" Id. The court clarified its definition of "mixing" in its order granting Transonic's motion for a preliminary injunction: "Returning blood to the shunt will result in its mixing with the blood already flowing through the shunt much like the way water in two merging rivers naturally mixes together. That is exactly the type of mixing this Court sought to adopt as the definition of the term 'mixing.'" Transonic II, slip op. at 7. In Transonic III, we affirmed the district court's claim construction of the term "mixing." Transonic III, 10 Fed. App. at 933.

The district court further concluded that NMT had provided no evidence of intent to deceive the PTO on the part of Transonic and, therefore, had not carried its burden of proving that Transonic's actions during prosecution rendered the '989 patent unenforceable. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). The internal documents to which NMT points do not impart intent to deceive to Transonic's statements made during prosecution. Nor does NMT point to any other evidence of Transonic's intent to deceive the PTO. Since an accused infringer must prove materiality and intent by clear

and convincing evidence, we agree with the district court's conclusion that NMT failed to introduce sufficient evidence from which a reasonable trier of fact could find that the elements of inequitable conduct had been established. We, therefore, affirm the district court's grant of summary judgment of no inequitable conduct to Transonic.

V. NMT's Bill of Costs and Claim for Attorneys' Fees

The award of costs to a prevailing party is a procedural matter not unique to patent law; therefore, the regional circuit law governs. Kohus v. Cosco, Inc., 282 F.3d 1355, 1357 (Fed. Cir. 2002). Under Tenth Circuit jurisprudence, an order denying costs is reviewed for an abuse of discretion. Munoz v. St. Mary-Corwin Hosp., 221 F.3d 1160, 1170 (10th Cir. 2000). NMT argues that it prevailed in the '989 patent suit and that it proved that its costs were necessarily incurred. Accordingly, it contends, it is entitled to recover costs associated with this suit. Additionally, NMT argues that the district court provided no statement of reasons why it required NMT to bear its own costs.

Generally, in the Tenth Circuit, a prevailing party may recover costs incurred as a result of the litigation. Furr v. AT & T Techs., Inc., 824 F.2d 1537, 1550 (10th Cir. 1987) ("There is a presumption in favor of award of costs"). In addition, a prevailing party in a patent case may, in certain circumstances, be granted attorneys' fees when the case in which it prevailed is deemed exceptional by the district court. 35 U.S.C. § 285. Since we vacate the district court's grant of summary judgment of noninfringement of the '989 patent, NMT is no longer a prevailing party. We therefore vacate the court's denial of NMT's bill of costs and attorneys' fees. These matters will be reconsidered upon final disposition of the case.

VI. Invalidity of the '550 Patent

Anticipation is a question of fact. Acromed Corp. v. Sofamor Danek Group, Inc., 253 F.3d 1371, 1378-79 (Fed. Cir. 2001). A court may not resolve a question of anticipation on

summary judgment unless there is no genuine issue of material fact. Trintec Indus., Inc. v. Top-U.S.A. Corp., 295 F.3d 1292, 1294 (Fed. Cir. 2002). To review the summary judgment of invalidity for anticipation we need to determine de novo whether the evidence in the record raises any genuine disputes about material facts. Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1327 (Fed. Cir. 2001). Summary judgment is proper if no reasonable jury could find that the patent is not anticipated. Id. Upon review of the record before us, we agree with the district court's determination that there is no disputed issue of material fact; we further conclude that no reasonable juror could find the asserted claims of the patent not invalid over the prior art references presented by Transonic.

An invention claimed in a patent is anticipated if "the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States" 35 U.S.C. § 102(b). A determination that a patent is invalid as being anticipated under 35 U.S.C. § 102 requires a finding that "each and every limitation is found either expressly or inherently in a single prior art reference." Celeritas Techs. Inc. v. Rockwell Int'l Corp., 150 F.3d 1354, 1360 (Fed. Cir. 1998). Because a patent issued by the PTO is presumed to be valid, 35 U.S.C. § 282, the evidentiary burden to show facts supporting a conclusion of invalidity is clear and convincing evidence. WMS Gaming, Inc. v. Int'l Game Techs., 184 F.3d 1339, 1355 (Fed. Cir. 1999).

On appeal, NMT alleges, as it did below, that Transonic infringes claims 1, 2, and 5, all of which Transonic contends are anticipated by prior art. The district court found that four separate references provided by Transonic anticipated the properly construed claims of the '550 patent. Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). The four references were (1) "The Assessment of Arteriovenous Fistulae From Pressure and Recirculation Studies," authored by Goldstein and Greenwood, et al. (the

"Greenwood article"); (2) Instrument Design for the Bedside Assessment of Arteriovenous Fistulae in Haemodialysis Patients, written by Aldridge et al. (the "Aldridge article"); (3) Assessment of Arteriovenous Fistulas from Pressure and Recirculation Studies: Clinical Experience in 215 Upper Limb Fistulas, written by Greenwood and Goldstein et al. (the "Goldstein article"); and (4) Operator's Manual for the FAM-10 Fistula Assessment Monitor (the "Operator's Manual"). The district court found that each of these references, none of which were presented to the PTO during prosecution, disclosed every element of claims 1, 2, and 5 of the '550 patent. Id.

"The first step in any invalidity . . . analysis is claim construction." Rockwell Int'l Corp. v. United States, 147 F.3d 1358, 1362 (Fed. Cir. 1998). The '550 patent has five claims, only one of which is independent. Independent claim 1 is reproduced above. Dependent claims 2 and 5 recite as follows:

2. The process defined in claim 1, wherein said material is a saline solution substantially isotonic with blood.
5. The process defined in claim 1, wherein said injection point is in said venous line.

'550 patent, col. 3, ll. 5-6 & col. 4, ll. 6-7.

NMT argues that the district court failed to construe the claim term "freshly dialyzed blood." It contends that, during prosecution, it amended the claim to include the requirement of "freshly dialyzed blood" in order to require that the dialyzer be left on during the entire procedure. The prosecution history, on which NMT relies, however specifically states that the amendment was made to show that the claim "requires the monitoring to occur during or after actual dialysis of blood through such dialysis filter or membrane." Accordingly, the dialyzer does not need to run during the entire process, but can be turned on for a period of time and then

turned off while the samples are taken for analysis.

NMT also argues that the district court misconstrued the claim term "detect." The district court construed this limitation to mean, "to determine the existence or presence of undesired recirculation." Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah June 8, 2001). NMT argues that the district court ignored the specification and, specifically, the portion of the specification that states: "With this method of determining the presence and amount of recalculation" '550 patent, col. 2, ll. 47-48. NMT contends that this statement limits the claim term "detect" to the determination of not only the presence, but also the amount, of recirculation. NMT also relies on a passage in the '550 patent's specification that states that "the amount of saline solution intermixed with blood can readily be determined optically" Id. at col. 2, ll. 29-31.

We are not persuaded by NMT's arguments. First, the statement regarding the amount of saline solution does not support a requirement that the amount of recirculation be determined as NMT asserts. It merely supports the fact that the amount of saline can be determined. Second, the '550 patent specification refers twice to detection of "undesired recirculation of freshly dialyzed blood," without mentioning a requirement that the amount of recirculation be determined. Id. at col. 1, ll. 7-8 & 49-51. These statements are not sufficient to require that we limit the plain meaning of the word "detect." The district court properly construed this claim term.

The second step in an anticipation analysis is a comparison of each prior art reference with the properly construed claims to determine whether every limitation is present in each reference. Celeritas Techs., 150 F.3d at 1360. There is an increased burden for proving invalidity when an Examiner considered the asserted references during prosecution. American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1359 (Fed. Cir. 1984). In this case, the Examiner did not consider any of the references asserted by Transonic, so there is no

increased burden of proof.

As it did before the district court, Transonic contends that the four cited prior art references render the '550 patent invalid. For its part, NMT argues that the references do not disclose the "freshly dialyzed blood" or "detect" limitations and that, therefore, they do not anticipate the claimed invention.

NMT's arguments are without merit. As discussed above, the claim terms "freshly dialyzed blood" and "detect" do not carry with them the limitations that NMT argues distinguish the '550 patent claims over the prior art.

With respect to the limitations expressly stated in claims 1, 2, and 5 of the '550 patent, the district court properly determined that each of the four articles listed by Transonic discloses those limitations. There is no genuine issue of material fact regarding the teachings of the four articles. Each article discloses injecting saline into the venous line, thereby satisfying the element requiring "injecting a material at an injection point in said dialyzer system, said material having a physical property differing from that of blood." These disclosures also satisfy the additional elements of dependent claims 2 and 5. Additionally, the Greenwood article and the Operator's Manual both disclose monitoring the optical density of the blood, while the Aldridge article and the Goldstein article both disclose monitoring the arterial line's temperature. These disclosures satisfy the element requiring "monitoring the fluid in said dialyzer system at a point in said dialyzer system upstream from said injection point for the presence of said differing physical property, to thereby detect undesired recirculation of freshly dialyzed blood from said venous line directly to said arterial line." Finally, each article discloses performing this procedure either during or after dialysis. Therefore, no reasonable juror could conclude that claims 1, 2, and 5 of the '550 patent are not invalid over any one of these four articles.

NMT further argues that the district court abused its discretion by denying NMT's motion

for reconsideration. We disagree and hold that the district court did not abuse its discretion. A court has inherent authority to reconsider its previous decision when there is (1) an intervening change in the controlling law; (2) discovery of new evidence previously unavailable; or (3) a need to correct clear error or prevent manifest injustice. Servants of the Paraclete v. Does, 204 F.3d 1005, 1012 (10th Cir. 2000). However, it is inappropriate for a court to consider a new argument based on "facts which were otherwise available for presentation when the original summary judgment motion was briefed." Van Skiver v. United States, 952 F.2d 1241, 1243 (10th Cir. 1991). The district court carefully considered the new evidence presented by NMT and held that "NMT has not met its burden in demonstrating why this additional evidence was not obtained and presented to the Court during briefing or oral argument." Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:99CV00041B (D. Utah Aug. 30, 2001). The new evidence presented by NMT related to the claim construction of the terms "freshly dialyzed blood" and "detect" and could have been provided during briefing. The district court neither erred in exercising its judgment nor abused its discretion.

VII. Transonic's Motion for Attorneys' Fees

Pursuant to 35 U.S.C. § 285, "the court in exceptional cases may award reasonable attorney fees to the prevailing party" in a patent suit. 35 U.S.C. § 285. We review the district court's decision to grant or deny attorney fees for abuse of discretion. Brassler, 267 F.3d at 1379. "Whether a case is 'exceptional,' in accordance with 35 U.S.C. § 285, is a question of fact." Id. at 1378. We review the district court's factual findings for clear error and review whether the district court applied the proper legal standard de novo. Id.

"The prevailing party may prove the existence of an exceptional case by showing: inequitable conduct before the PTO; litigation misconduct; vexatious, unjustified, and otherwise bad faith litigation; a frivolous suit or willful infringement." Epcon Gas Sys., Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1034 (Fed. Cir. 2002). If a court finds that the prevailing party has satisfied its burden of proving the existence of an exceptional case, it must then decide whether to award attorney fees. See Pharmacia & Upjohn Co. v. Mylan Pharms., Inc., 182 F.3d 1356, 1359 (Fed. Cir. 1999). Transonic argues that the district court erred in concluding that the '550 patent infringement suit was not exceptional. Transonic contends that NMT knew that it was enforcing an invalid patent when it sued Transonic based on the '550 patent and that therefore NMT was acting in bad faith and its suit was frivolous. Additionally, Transonic urges that the district court failed to explain why it found the '550 patent infringement suit unexceptional.

A district court must provide reasoning for its determination that a case is not exceptional in order for us to provide meaningful review. Superior Fireplace Co. v. Majestic Prods. Co., 270 F.3d 1358, 1377 (Fed. Cir. 2001) (holding that district court's statement that "after careful consideration, . . . the instant case is not an 'exceptional case' as contemplated by the statute," constituted a "failure to provide any findings or reasoning prevent[ing] us from reviewing its decision"). We are unable to find such reasoning in the district court's order, especially any

explanation why the case was not exceptional in light of NMT's prior opinion, before it became the licensee of the patent, that it was invalid. Consequently, we vacate the district court's denial of Transonic's attorneys' fees and remand for a statement of reasons by the district court regarding the exceptionality of this case.

VIII. Transonic's Bill of Costs

As noted above, an order denying costs is reviewed for an abuse of discretion in the Tenth Circuit. Munoz, 221 F.3d at 1170. Transonic argues that it prevailed in the '550 patent suit and therefore is entitled to its costs. Transonic also argues that the district court was required to provide an explanation as to why it rejected Transonic's bill of costs, but failed to do so.

In the Tenth Circuit, there is a presumption that a prevailing party will be able to recover costs incurred as a result of the litigation, absent a statement of the reasons for denial. Furr, 824 F.2d at 1550 ("There is a presumption in favor of award of costs; we generally require a court to state its reasons if it decides to deny costs to a prevailing party."). We are unable to find a statement of reasons by the district court for its denial of Transonic's bill of costs. We therefore vacate the denial of Transonic's claim for costs and remand so that the court may state the reasons for its ruling.

CONCLUSION

For the foregoing reasons, the decision of the district court is affirmed-in-part, vacated-in-part, and remanded.

[1]

Claim 1 of the '989 patent is quoted above. Claim 9 reads as follows:

9. A process for determining patient blood flow in a patient hemodialysis shunt, comprising:

removing blood from a downstream location in a hemodialysis shunt by way of an inlet connected to an inlet side of a hemodialysis circulating line to provide blood flowing in said circulating line;

delivering the blood flowing in said circulating line by way of an outlet connected to an outlet side of said circulating line to an upstream location of said shunt, the blood from said outlet being delivered to said shunt so as to mix with patient blood flow in said shunt to produce mixed blood, whereby blood removed from said shunt by way of said inlet is a portion of said mixed blood;

changing a selected blood parameter in said circulating line to produce a distinguishable blood characteristic at the outlet side of said circulating line;

measuring in said circulating line the amount of said changed parameter present in said portion of the mixed blood; and

determining the rate of patient blood flow in said shunt from the measured amount of said changed parameter.

'989 patent, col. 9, ll. 13-35.

[2]
States Code.

All references are to statutes as set forth in the 2000 version of the United