

# United States Court of Appeals for the Federal Circuit

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**LEXION MEDICAL, LLC,**  
*Plaintiff-Appellee,*

v.

**NORTHGATE TECHNOLOGIES, INC., SMITH &**  
**NEPHEW, INC.,**  
**AND LINVATEC CORPORATION,**  
*Defendants-Appellants.*

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2009-1494

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Appeal from the United States District Court for the Northern District of Illinois in case no. 04-CV-5705, Judge Charles P. Kocoras.

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Decided: April 22, 2011

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DAVID G. WILLIE, Baker Botts, L.L.P., of Dallas, Texas, argued for plaintiff-appellee. With him on the brief was DAVID O. TAYLOR.

MEREDITH M. ADDY, Brinks Hofer Gilson & Lione, of Chicago, Illinois, argued for defendants-appellants. With her on the brief were TIMOTHY Q. DELANEY, TIMOTHY P. LUCIER and LAURA A. LYDIGSEN.

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Before RADER, *Chief Judge*, DYK and PROST, *Circuit Judges.*

RADER, *Chief Judge*.

The United States District Court for the Northern District of Illinois entered summary judgment that Defendants-Appellants Northgate Technologies, Inc., Smith & Nephew, Inc., and Linvatec Corp. (collectively, “Northgate”) infringe United States Patent No. 5,411,474 (“474 patent”). *Lexion Med., LLC. v. Northgate Techs.*, 618 F. Supp. 2d 896 (N.D. Ill. 2009). Contesting this judgment, Northgate questions the district court’s construction of the claim limitation “having a temperature within 2°C of the predetermined temperature.” Because the record amply supports the trial court’s interpretation of this claim term and we find no genuine issue of material fact regarding infringement, this court affirms.

## I

To create more working space during laparoscopic procedures, surgeons inflate the abdominal cavity with gas. Traditionally, an insufflator directly pumped gases used for laparoscopic procedures through a tube and into a patient’s body. The gases were relatively cold (generally at least 17°C below body temperature), ’474 patent col.1 ll.63-64, and dry (200 parts per million or less of water vapor), *id.* at col.2 ll.35-36.

Because of the cold and dry gas, patients could experience post-operative shivering and shoulder pain as a common side effect of laparoscopic procedures. To minimize this side effect, the ’474 patent discloses and claims an apparatus for heating and humidifying gas to a predetermined and preset temperature for use during laparoscopic procedures. *Id.* at col.3 ll.44-48.

The claimed apparatus aims to deliver gas “within 2°C of the predetermined temperature.” *Id.* at col.4 ll.31-32. For example, the patent provides for gas being delivered “while still maintained at the desired temperature, or at least within about 2°C of it, and preferably within about 0.5°C[.]” *Id.* at col.9 ll.28-30. The specification also states that upon activation “there is a lag time of milliseconds for sensing the temperature of gas and adjusting the heating to achieve the proper gas temperature. . . . [and that] approximately the first 12 to 15 cubic centimeters of gas leaving the apparatus after it is activated are cooler than the predetermined temperature.” *Id.* at col.9 ll.49-55.

Claims 11 and 12 of the ’474 patent are at issue in this appeal. Claim 11 states:

11. A method of providing heated, humidified gas into a patient for an endoscopic procedure comprising the steps of:

- a) directing pressure- and volumetric flow rate-controlled gas, received from an insufflator into a chamber having a means for heating the gas to a temperature within a predetermined range and a means for humidifying the gas and being disposed immediately adjacent to the patient, wherein the chamber is in flow communication with and immediately adjacent to a means for delivering the gas to the interior of the patient;
- b) sensing the temperature of the gas as it exits the chamber to determine if it is within the predetermined range; and

- c) actuating the heating means if the temperature of the gas is without the predetermined range;
- d) humidifying the gas within the chamber; and
- e) flowing the gas into the delivery means such that the gas enters the patient humidified and *having a temperature within 2°C of the predetermined temperature* and thus providing the gas.

*Id.* at col.12 ll.43-65 (emphasis added). Dependant claim 12 requires:

12. The method of claim 11, wherein the heating means and the humidifying means heat and humidify the gas simultaneously.

*Id.* at col.12 ll.66-68 (emphasis added).

Northgate's accused Humi-Flow device heats and humidifies gas from an insufflator. Gas from the insufflator passes through a tube connected to an inlet leading into the Humi-Flow's chamber. The gas is heated and humidified before being pushed through the Humi-Flow's outlet, into a tube, and then into a patient's body.

The Humi-Flow indirectly heats gas flowing through it. Heating elements within the Humi-Flow raise the temperature of a heater core. Gas passing through the Humi-Flow is heated through contact with that heater core. By maintaining the heater core at 70°C the passing gas is heated to 37°C.

The Plaintiff-Appellee Lexion Medical, LLC ("Lexion") sued Northgate for infringement of both claims 11 and 12 of the '474 patent for making and selling its Humi-Flow device.

## II

This case has previously appeared before this court. *Lexion Med., LLC. v. Northgate Techs., Inc.*, 292 Fed. Appx. 42 (Fed. Cir. 2008) (“*Lexion I*”). In *Lexion I*, this court, inter alia, vacated the district court’s judgment of infringement of the ’474 patent and remanded with new constructions of the claim limitations “means for humidifying,” “means for heating,” and “predetermined temperature.” *Id.* at 51-52. On remand, as noted, the district court granted Lexion’s motion for summary judgment of infringement.

At the trial preceding *Lexion I*, Dr. John Burban (“Burban”) provided expert testimony that the Humi-Flow released gas “having a temperature within 2°C of the predetermined temperature.” The district court did not construe “predetermined temperature.” Burban’s first declaration and data were premised on a proposed construction of “predetermined temperature” later rejected by this court in *Lexion I*.

Burban conducted two sets of experiments (“Test 1” and “Test 2”) to measure the temperature of gas heated by the Humi-Flow. These tests took temperature readings at the outlet, or exit, of the Humi-Flow, and at the exit of a trocar, or tube, leading to a water bath. The only difference between Test 1 and Test 2 was trocar placement.

Burban’s first declaration analyzed data collected from both Test 1 and Test 2. Burban’s analysis showed that the temperature range of gases coming from the Humi-Flow fit within Lexion’s initial “range of range” construction of “predetermined temperature” and also satisfied “having a temperature within 2°C of the predetermined temperature.” Lexion’s “range of range” construction of “predetermined temperature” explained that the claimed device was set to a predetermined tempera-

ture that was not a single temperature point, but was within a range of temperatures. With this construction of “predetermined temperature,” Lexion argued that the 2°C range in limitation (e) meant within 2°C of the predetermined temperature range, “a range of a range.”

At the trial preceding *Lexion I*, the jury returned a special verdict that Northgate induced and contributed to the infringement of the ’474 patent. *Lexion Med., LLC. v. Northgate Techs. Inc.*, No. 1:04-CV-5705, slip op. at 1 (N.D. Ill. Feb. 12, 2007). The district court denied Northgate’s motion for Judgment as a Matter of Law and entered judgment for Lexion. *Id.* at 3-4. On appeal in *Lexion I*, this court construed “predetermined temperature” as “a single temperature point,” vacated the jury’s verdict, and remanded for further proceedings on the issue of infringement. After remand from this court, *Lexion I*, 292 Fed. Appx. at 51-52, Lexion and Northgate cross-moved for summary judgment of infringement and noninfringement respectively.

On remand, Lexion filed a new expert declaration (“second declaration”) from Burban. Working with the new narrower construction of “predetermined temperature,” Burban’s second declaration only analyzed a subset of the data from Test 1. The second declaration identified the temperatures entering the simulated patient to span a range of 3.64°C, and almost always within 2°C of 37°C, human body temperature. In its reply in support of its motion for summary judgment of non-infringement, Northgate objected to Burban’s second declaration, arguing it made contradictory new arguments after the close of discovery, and thus violated Federal Rules of Civil Procedure 26(a)(2) and 37(c)(1).

Limitation (e) of claim 11 requires gas to enter the patient “humidified and having a temperature within 2°C of

the predetermined temperature.” ’474 patent col.12 ll.63-64. The district court held that limitation (e) of claim 11 did not require that the temperature range always be within 2°C of the predetermined temperature because the ’474 specification discloses that temperatures “will, at times, fluctuate outside the four-degree range.” *Lexion*, 618 F.Supp.2d at 902. Based on this record, the district court granted summary judgment of literal infringement for Lexion. *Id.*

Northgate timely appealed the district court’s grant of summary judgment. This court has jurisdiction under 28 U.S.C. § 1295(a)(1).

### III

#### A.

Summary judgment in this case was premised in part on the district court’s interpretation of limitation (e) of claim 11. Claim construction is a question of law which this court reviews without deference. *Cybor Corp. v. FAS Techs. Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

This court gives words of a claim their ordinary and customary meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The customary meaning of a claim term is not determined in a vacuum and should be harmonized, to the extent possible, with the intrinsic record, as understood within the technological field of the invention. *Id.* at 1314 (citing *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005)); see also *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) (“[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms”).

Limitations (b) and (c) of claim 11 inform the meaning of limitation (e) of the claim. This court prefers a claim interpretation that harmonizes the various elements of the claim to define a workable invention. *See Phillips*, 415 F.3d at 1315-16 (the construction that “most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction”).

Reading limitations (b), (c), and (e) together shows, as the trial court correctly concluded, that the claimed invention will tolerate and correct minor fluctuations outside of the 4°C range of limitation (e). Limitation (b) requires the claimed method to “sens[e] the temperature of the gas as it exits the chamber to determine if it is within the predetermined range,” and limitation (c) adds that, in response to limitation (b), the device can “actuat[e] the heating means if the temperature of the gas is without the predetermined range[.]” ’474 patent col.12 ll.55-60. Because limitations (b) and (c) imply that gas leaving the chamber will fluctuate briefly outside of the predetermined range, the range of the gas entering the patient through a tube leading from the chamber, as described by limitation (e), must have the same fluctuations.

The district court thus also gives a correct meaning to the term “within” in the contested limitation. In the context of this particular invention, “within” does not mean “always within.” Indeed, as noted above, both the claim context which includes limitations (b) and (c) and the specification inform one of ordinary skill in this art that “within” carries a reasonable meaning that tolerates temperature fluctuations in the normal start-up and usage of the invention. This court also observes that alternative wordings of this limitation, such as the alternatives “sometimes within” or “occasionally within” proposed by Northgate, would disrupt more than promote

the definitional precision of the “within 2°C” limitation as limited to minor variations.

Beyond the claim context and language, the specification also permits minor fluctuations outside of the 2°C range in limitation (e). While the ’474 patent discloses a precise method of heating and humidifying gas “preferably within about 0.5°C” of the predetermined temperature, the specification acknowledges and contemplates that gas will not always be delivered to a patient within 0.5°C of the predetermined temperature. At one point, the specification clarifies that the patient would receive gas “at least within *about* 2°C” of the predetermined temperature. ’474 patent col.9 ll.28-30 (emphasis added).

At another juncture, the specification notes that “upon activating the apparatus or changing the demand on the apparatus (e.g. flow rate or pressure), there is a lag time of milliseconds for sensing the temperature of gas and adjusting the heating to achieve the proper gas temperature.” *Id.* at col.9 ll.47-55. Thus, the specification discloses that the temperature will at times fluctuate outside of the range. Apart from activation and changing rate flow demands, the specification discloses other times when the gas will not be within 2°C of the predetermined temperature. *See* ’474 patent col.9 ll.26-31 (“Thus, the gas that is now heated, humidified and filtered . . . [passes into the patient] within about 2°C [of the predetermined temperature]”). In sum, the specification also supports the district court’s construction of the claim terms.

The district court correctly interpreted “having a temperature within 2°C of the predetermined temperature” not to require the claimed device to always be with 2°C of the predetermined temperature. Thus, the trial court’s interpretation of this phrase reflects accurately both the

claim language and the specification's support for that claim language.

The district court's construction is also fully consistent with this court's construction of "predetermined temperature" in *Lexion I*. In *Lexion I*, this court rejected Lexion's "range of range" proposed construction in favor of "a single temperature point." 292 Fed. Appx. at 49. Northgate argues this court's rejection of Lexion's "range of temperatures" requires the district court to narrowly construe "within 2°C of the predetermined temperature" to require gas heated by the claimed device to always be within 2°C of the predetermined temperature.<sup>1</sup> To the contrary, this court's construction of "predetermined temperature" in *Lexion I* and the district court's subsequent construction of "within 2°C of the predetermined temperature" are consistent.

The district court found, and this court agrees, that the Humi-Flow can heat gas that varies, at times, from within 2°C of the predetermined temperature and can still literally infringe the '474 patent. Because the predetermined temperature is a single temperature point (even if selected from a range of possibilities), the term "within 2°C of the predetermined temperature" means just that, within 2°C of the predetermined temperature, subject to minor fluctuations. This court detects no inconsistency and sustains the trial court's determination.

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<sup>1</sup> Northgate concedes there might be two instances identified by the '474 patent where the temperature could be outside the 2°C range of the predetermined temperature—at start up and when there are flow rate changes. Appellant Br. at 45. Northgate's argument that gas must always be within 2°C of the predetermined temperature would apply to all other times.

## B.

This court turns next to a review of the record to determine whether summary judgment was proper. Summary judgment is appropriate “if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). This court reviews the district court’s grant or denial of summary judgment under the law of the regional circuit. *MicroStrategy Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344, 1349 (Fed. Cir. 2005). The Seventh Circuit reviews the district court’s grant of summary judgment without deference. *Chaklos v. Stevens*, 560 F.3d 705, 710 (7th Cir. 2009). This court reviews evidentiary determinations by the district court under the law of the regional circuit. *Insituform Techs., Inc. v. CAT Contracting, Inc.*, 161 F.3d 688, 694 (Fed. Cir. 1998). The Seventh Circuit reviews evidentiary determinations for an abuse of discretion. *Griffen v. Foley*, 542 F.3d 209, 217-18 (7th Cir. 2008).

Lexion contends that summary judgment of infringement was proper under a construction of the “within 2°C of the predetermined temperature” limitation that permits minor temperature fluctuations outside of the 4 degree range. In his second declaration, Burban drew conclusions based on his consideration of a subset of his prior test data which excluded data collected from the Humi-Flow operating at a 20 LPM flow rate, because flow rates that high “represent[ed] an unrealistic situation that would not occur during a real surgery.” J.A. 14,851. Considering the relevant data collected at realistic flow rates, Burban concluded that the Humi-Flow provided gas at the trochar end at temperatures within 2°C of 37°C for all but 15 seconds of his 20 minute test. Lexion argues that those few seconds outside the 4 degree range constitute a minor fluctuation that is permissible under our

proper claim construction of the “within 2°C of the predetermined temperature” limitation. Northgate argues that Burban’s second declaration, which considered only a subset of collected data, should have been excluded.

The district court permitted Lexion to rely on Burban’s second declaration to show that the accused device delivered gas within 2°C of the predetermined temperature. Burban’s second declaration followed the remand wherein this court provided a new claim construction to the district court. *Lexion I*, 292 Fed. Appx. at 51-52. This court remanded to permit the trial court to reassess the case in the context of the new claim construction. *Id.* In that context, the district court had wide discretion to permit the parties to supplement the record with new factual declarations consistent with the new understanding of the claim. *Bowers v. BayState Techs., Inc.*, 320 F.3d 1317, 1334 (Fed. Cir. 2003) (a change in claim construction at the appellate level “generally necessitates a remand to the district court to consider new factual issues”). In the context of a new claim construction, the district court did not abuse its discretion by permitting Lexion to submit Burban’s second declaration.

The record also shows that the trial court properly concluded that, drawing all inferences in favor of the non-moving party, Lexion was entitled to summary judgment of infringement. The record shows no material disputes of fact that the accused Humi-Flow device heats and maintains gas as a “predetermined temperature” within the claimed range, allowing for minor fluctuations. Moreover, where the record adequately supports the judgment, the district court does not have an obligation to recite every detail of its reasoning. See, e.g., *Univ. of Pittsburgh v. Varian Med. Sys. Inc.*, 569 F.3d 1328, 1335 (Fed. Cir. 2009) (vacating and remanding judgment not supported

by the record). In this case, the record sufficiently supports the trial court's judgment.

The district court correctly construed limitation (e) of claim 11 and properly declined to read in a limitation that the gas must always fall within a 4°C range of the predetermined temperature. With all evidence viewed in a light most favorable to Northgate, this court detects no genuine issue of material fact to preclude a conclusion other than that the accused Humi-Flow device infringes the '474 patent. Accordingly, this court affirms the district court's grant of Lexion's motion for summary judgment of literal infringement.

**AFFIRMED**