

NOTE: This disposition is nonprecedential.

**United States Court of Appeals  
for the Federal Circuit**

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**ALCOHOL MONITORING SYSTEMS, INC.,**  
*Plaintiff-Appellant,*

v.

**ACTSOFT, INC., OHIO HOUSE MONITORING  
SYSTEMS, INC., and US HOME DETENTION  
SYSTEMS AND EQUIPMENT, INC.,**  
*Defendants-Appellees.*

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2010-1250

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Appeal from the United States District Court for the  
District of Colorado in consolidated case Nos. 07-CV-2261  
and 08-CV-1226, Judge Philip A. Brimmer.

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Decided: January 24, 2011

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MICHAEL G. MARTIN, Lathrop & Gage, LLP, of Denver,  
Colorado, argued for plaintiff-appellant. With him on the  
brief were PHILLIPS S. LORENZO and JAMES E. DALLNER.

KYLE B. FLEMING, Renner, Otto, Boisselle & Sklar,  
LLP, of Cleveland, Ohio, argued for defendants-appellees.  
With him on the brief were TODD R. TUCKER and

NICHOLAS J. GINGO. Of counsel on the brief were RICHARD E. FEE and KATHLEEN M. WADE, Fee & Jefferies, P.A., of Tampa, Florida.

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Before LOURIE, CLEVINGER, and MOORE, *Circuit Judges*.  
MOORE, *Circuit Judge*.

Alcohol Monitoring Systems, Inc. (AMS) appeals the district court's grant of summary judgment that defendants Actsoft, Inc. (Actsoft), Ohio House Monitoring Systems Inc. (Ohio House), and U.S. Home Detention Systems and Equipment, Inc. (U.S. Home) (collectively, Defendants) do not infringe the asserted claims of U.S. Patent No. 5,220,919 ('919 patent). Because the district court based its grant of summary judgment on an erroneous claim construction and genuine issues of material fact preclude summary judgment of infringement under the doctrine of equivalents, we *affirm-in-part, reverse-in-part*, and *remand*.

#### BACKGROUND

The '919 patent is entitled "Blood Alcohol Monitor" and discloses a device and methods of operating a device that securely attaches to a human subject and monitors blood alcohol levels by determining the alcohol levels expelled through a subject's skin. The device is useful for monitoring the consumption of alcohol in individuals under house arrest or in alcohol rehabilitation programs.

The liver metabolizes most of the alcohol ingested by a human. Water compartments in the skin, however, also absorb small amounts of alcohol, which the skin later emits through insensible perspiration. Measuring the alcohol levels expelled through a subject's skin is known

as transdermal alcohol monitoring. Transdermal alcohol levels are not the same as blood alcohol levels, which one measures from a blood sample using gas chromatography. However, “measuring the amount of ethanol at a predetermined distance away from the subject’s skin . . . provides an indication of the relative amount of ethanol in the subject’s blood.” ’919 patent col.3 ll.27-31.

One measures transdermal alcohol levels by sampling the air near a subject’s skin with a transdermal alcohol sensor. *Id.* col.6 ll. 48-66. The alcohol sensor creates an electrical current and the voltage of that electrical current is proportional to the amount of alcohol present in the sampled air. *Id.* col.6 ll.59-62. Through the use of conversion factors, one can convert this voltage and calculate a transdermal alcohol concentration (TAC) that approximates blood alcohol content (BAC). *Id.* col.11 ll.28-38. Claim 14 of the ’919 patent is at issue in this appeal:

14. A method for monitoring the percentage of blood alcohol content of a human subject, said method comprising the steps of:
  - (a) securely attaching an alcohol measurement device to the human subject using an attachment device;
  - (b) storing an error indication if the human subject tampers with said measurement device or an error occurs within said measurement device;
  - (c) measuring a percentage of alcohol expelled through the subject’s skin into said measurement device and storing a measurement result;
  - (d) repeating steps (b) and (c) until a predetermined amount of time expires;

- (e) transmitting each of said measurement results and each of said tamper and error indications to said monitoring station; and
- (f) repeating steps (b) through (e).

AMS markets the SCRAM device, which it considers a preferred embodiment of the '919 patent. The SCRAM device not only measures the voltage produced by the alcohol emitted through the subject's skin, but also converts the voltage measurement to a TAC value that approximates a percentage BAC.<sup>1</sup>

On October 25, 2007, AMS asserted the '919 patent against Actsoft and Ohio House for the sale of the House Arrest Solution (HAS) device. AMS later added U.S. Home as a defendant. The HAS device includes an ankle bracelet with a gas sensor that measures the voltage produced by the alcohol emitted through a subject's skin, but does not calculate TAC or any other percentage. Every fifteen minutes, the HAS device takes four voltage measurements. The measurement result stored and transmitted by the HAS device is a scaled, average voltage reading calculated by a proprietary formula. Defendants refer to this calculated variable as "fValc," which is a decimal average of the four voltage measurements.

On December 30, 2008, defendants Actsoft and Ohio House moved for summary judgment of noninfringement and invalidity. On April 27, 2009 the district court issued an Order Regarding Claim Construction. *Alcohol Monitoring Sys. Inc. v. Actsoft, Inc.*, Civil Action Nos. 07-cv-

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<sup>1</sup> BAC is the amount of alcohol per fixed unit of blood and is normally defined as grams of ethanol per deciliter of blood (g/dL). This BAC is also defined as a percentage of the weight of ethanol per volume of blood (% w/v).

02261, 08-cv-01226-PAB-MJW, 2009 WL 1120113 (D. Colo. Apr. 27, 2009) (Markman Order). The district court construed the disputed terms, two of which are at issue in this appeal – steps (c) and (e). *Id.* at \*7.

The district court held that step (c) of claim 14 required “the measurement of the amount of alcohol being emitted from an individual’s skin and the calculation of a percentage of blood alcohol content.” *Id.* The district court noted that the specification consistently referred to the invention as measuring blood alcohol content. *Id.* at \*4-5. For example, the specification alternatively describes the invention as: a “method to passively test the blood alcohol content of a human subject;” “perform[ing] testing which indicates the blood alcohol content of a human subject;” and “provid[ing] for the continuous monitoring of a subject’s blood alcohol level by measuring the level of ethanol that has been expelled through the subject’s skin.” *Id.* at \*5. The district court noted that the specification contains an example of how to calculate blood alcohol content after measuring a sample with a sensor that measures voltage. *Id.* at \*4-5.

The district court further found that its construction was supported by the preamble of claim 14:

Step (c) contemplates more than the mere ascertaining of the amount of alcohol emitted from a person’s skin. Some calculation or series of calculations must take place which lead to the identified percentage. It is true that Step (c) does not indicate literally that the calculation undergone at this stage arrives at a measure of blood alcohol content. However, . . . Claim 14 as a whole does indicate that such a calculation is to occur; its preambulatory language explains that the invention consists of a ‘method for monitoring the per-

centage of blood alcohol content of a human subject.’ It is axiomatic that a device could not ‘monitor’ one’s percentage of blood alcohol content without first determining what that percentage is.

*Id.* at \*4 (internal citations omitted). The district court also determined that its construction was supported by the testimony of AMS’s expert J. Robert Zettl who stated that the term “percentage of alcohol” in step (c) meant “blood alcohol concentration.” *Id.* at \*4.

The district court construed step (e) to require “transmitting every indication from Step (b) and every measurement from Step (c) in a way that the individual indications and measurements are separately identifiable.” *Id.* at \*7. The district court relied on a dictionary defining “each” as “being one of two or more distinct individuals having a similar relation and often constituting an aggregate.” *Id.*

On April 28, 2009, the district court, ruling from the bench, granted the motion for summary judgment of noninfringement. *Alcohol Monitoring Sys. Inc. v. Actsoft, Inc.*, Civil Action Nos. 07-cv-02261, 08-cv-01226-PAB-MJW, Document Number 210 at 10 (D. Colo. Apr. 28, 2009) (Opinion). The district court noted that AMS conceded that literal infringement was not possible given the court’s claim construction because the HAS device does not calculate a percentage of BAC. *Op.* at 5. The district court also held that the HAS device did not infringe under the doctrine of equivalents, because the “use of an alcohol sensor that provides nothing more than a voltage output equivalent to the amount of alcohol emitted from the subject’s skin is not the substantial equivalent of calculating a percentage of blood alcohol content.” *Op.* at 8. The district court determined that measuring the voltage alone is neither the substantially same func-

tion nor yields the substantially same result as determining a percentage of BAC. Op. at 8-9.

AMS appeals, challenging the court's claim construction and judgment of noninfringement. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

#### DISCUSSION

Infringement, either literal or under the doctrine of equivalents, is a question of fact. *IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1429 (Fed. Cir. 2000). An infringement analysis is a two-step inquiry: first the court must construe the claims, and second the court must apply the properly construed claims to the accused device. See, e.g., *Acumed L.L.C. v. Stryker Corp.*, 483 F.3d 800, 804 (Fed. Cir. 2007). We review both the district court's grant of summary judgment of noninfringement and its underlying claim construction *de novo*. *Laryngeal Mask Co. Ltd. v. Ambu A/S*, 618 F.3d 1367, 1370 (Fed. Cir. 2010). "Summary judgment is appropriate when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law." *Immunocept, L.L.C. v. Fulbright & Jaworski L.L.P.*, 504 F.3d 1281, 1286 (Fed. Cir. 2007). In making this determination, this court views the record in the light most favorable to the non-moving party. See *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986).

#### I. Claim Construction

Generally, we give claim terms their ordinary and customary meaning, which is the meaning a person of ordinary skill in the art would give to the term at the time of invention when read in the context of the specification and prosecution history. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

### A. Step (c)

AMS argues that step (c) does not require the “calculation of a percentage of blood alcohol content.” We agree. AMS asserts that the district court improperly treated the preamble language “monitoring the percentage of blood alcohol content” as a limitation by requiring a calculation of BAC in step (c). Generally, a preamble does not limit the scope of claims unless “it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.” *See, e.g., Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (internal citations omitted). We previously held that a preamble is not limiting where it “merely gives a descriptive name to the set of limitations in the body of the claim that completely set forth the invention.” *IMS Tech., Inc.*, 206 F.3d at 1434-35 (Fed. Cir. 2000). Here, “monitoring the percentage of blood alcohol” is such a descriptive name and does not additionally limit the scope of the claims.

Furthermore, the district court’s construction of step (c) is difficult to reconcile with the fact that devices that measure alcohol emitted through the skin do not actually calculate a BAC, but instead calculate a TAC, which approximates BAC. The plain language of the claim, “percentage of alcohol expelled through the subject’s skin,” indicates that the measurement is not BAC, which is only measured by a blood sample, but instead is TAC. Indeed, Defendants admit that the claimed method calculates TAC, a percentage that provides an indication of BAC. Therefore, to the extent the claim requires a calculation of a percentage, that percentage only approximates BAC (*e.g.*, TAC).

However, AMS further contends that the term “percentage” does not require any calculation, but instead is a “percentage of alcohol expelled through the subject’s skin

into said measurement device.” In other words, AMS contends that the term refers to the measured sample, which is not all of the alcohol expelled through the subject’s skin, but only the “percentage” that enters “into said measurement device.”

Under AMS’s proposed construction, the “percentage” is not a quantifiable measurement. A person of skill in the art would be unable to calculate what “percentage” of alcohol went into the measurement device, compared to the total alcohol expelled through the body in its entirety. Even if the device could conceivably quantify the amount of alcohol entering into the device, the device could not determine the total quantity of alcohol expelled through the body.

Because AMS’s proposed construction is not quantifiable, it conflicts with claims 19 and 21, which depend from claim 14. Claims 19 and 21 require storing an interferant indication “if a change in said percentage of alcohol exceeds a predetermined . . . rate.” It logically follows that the claimed percentage must itself be a numerical value or one could not compare “a change in said percentage” to “a predetermined rate” as required by the dependent claims. Therefore, claim 14 requires the actual calculation of a percentage and AMS’s proposed construction cannot be correct.

Thus, properly construed, step (c) requires the measurement of an amount of alcohol being emitted from an individual’s skin and the calculation of a percentage that approximates blood alcohol content (*e.g.*, transdermal alcohol content). This construction is consistent with both the intrinsic record and the extrinsic testimony from AMS’s inventor and expert witness.

### B. Step (e)

AMS contends that the district court improperly construed step (e) to require transmitting “in a way that the individual indications and measurements are separately identifiable” based solely on the HAS device and the Defendants’ noninfringement arguments. AMS further argues that the district court’s construction is inappropriate because it confuses “measurement” with the claimed “measurement result.” Defendants argue that the district court did not construe step (e) solely in light of the HAS device, but instead relied on the plain meaning of “each.”

We agree with AMS that the district court appears to have conflated the measurement of a percentage and the claimed “measurement result.” Step (e) requires “transmitting each of said measurement results and each of said tamper and error indications to said monitoring station.” We note that this “measurement result” may or may not be the same as the measured “percentage” of step (c). The claim does not require the storage and transmission of “said percentage” but instead introduces a new limitation: “a measurement result.” While the claimed “measurement result” could be the calculated “percentage” it could also be an indicator that the human subject has consumed alcohol or any other result capable of storage and transmission. These are two separate limitations and may or may not include the same information. Therefore, properly construed step (e) should refer not to a “measurement” but instead to a “measurement result.”

Regarding the “separately identifiable” language of the district court’s construction, the district court clearly relied on the plain meaning of “each” and not the accused device as AMS alleges. We agree with the district court that the plain meaning of “each” is defined as “being one of two or more distinct individuals having a similar rela-

tion and often constituting an aggregate.” Markman Order at 13 (citing Merriam-Webster’s Collegiate Dictionary 390 (11th ed. 2007)). Thus, step (e) as properly construed requires transmitting every measurement result from step (c) in a way that the measurement results are separately identifiable.”

## II. Infringement

“To prove literal infringement, the patentee must show that the accused device contains every limitation in the asserted claims.” *Mas-Hamilton Grp. v. La-Gard, Inc.*, 156 F.3d 1206, 1211 (Fed. Cir. 1998). To find infringement under the doctrine of equivalents, any differences between the claimed invention and the accused product must be insubstantial. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950). One way of proving infringement under the doctrine of equivalents “is by showing on a limitation by limitation basis that the accused product performs substantially the same function in substantially the same way with substantially the same result as each claim limitation of the patented product.” *See, e.g., Crown Packaging Tech., Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1312 (Fed. Cir. 2009).

It is undisputed that the HAS device does not calculate TAC or any percentage that approximates BAC, but merely measures voltage. Therefore, under the proper claim construction of step (c), the HAS device does not literally infringe claim 14 of the '919 patent.

With regard to the doctrine of equivalents, AMS argues that the district court failed to provide step (c) with any equivalents, because it required a calculation of a percentage that is included in the literal scope of the claims. AMS argues that this is reversible error, because a reasonable jury could conclude that the HAS device infringes under the doctrine of equivalents because its

quantitative voltage measurement is equivalent to a calculation of a percentage TAC. AMS contends that both the measured voltage and the calculated percentage increase with increased alcohol consumption. AMS argues that to convert the measured voltage in the HAS device to a percentage of alcohol one must only use a simple mathematical equation. Thus, AMS argues that the only difference between the measured voltage and a calculated percentage of alcohol is the unit of measurement.

Defendants argue that voltage is not substantially the same result as obtaining a percentage TAC. Defendants contend that the ultimate goal of transdermal alcohol monitoring is to obtain an approximate BAC and voltage alone, without more, is insufficient to calculate TAC. Defendants contend that even if there is a simple formula or algorithm to convert the HAS device's voltage to a percentage TAC, there is no evidence that the HAS device performs such a calculation.

Under the facts before us, a reasonable jury could conclude that the HAS device's voltage measurements perform substantially the same function, in substantially the same way, to achieve substantially the same result as the calculation of a percentage TAC. Therefore, the district court erred in granting summary judgment of noninfringement under the doctrine of equivalents.

Defendants argue that they are separately entitled to summary judgment of noninfringement because the HAS device either does not perform step (d) or step (e). We decline to address these arguments for the first time on appeal. *See Superguide Corp. v. DirecTV, Inc.*, 358 F.3d 870, 884 (Fed. Cir. 2004) (declining to address infringement theories not addressed by district court's summary judgment decision). Now that we have properly construed

the disputed terms, the parties will be in a better position to brief these issues to the district court.

#### CONCLUSION

For the reasons discussed above, we *affirm* the district court's grant of summary judgment of no literal infringement, *reverse* the district court's grant of summary judgment of no infringement under the doctrine of equivalents and *remand*.

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

#### COSTS

Each party shall bear its own costs.