

# United States Court of Appeals for the Federal Circuit

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**TACTION TECHNOLOGY, INC.,**  
*Plaintiff-Appellant*

v.

**APPLE INC.,**  
*Defendant-Appellee*

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2023-2349

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Appeal from the United States District Court for the Southern District of California in No. 3:21-cv-00812-TWR-JLB, Judge Todd W. Robinson.

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Decided: August 13, 2025

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JOHN BASH, Quinn Emanuel Urquhart & Sullivan, LLP, Austin, TX, argued for plaintiff-appellant. Also represented by SEAN S. PAK, San Francisco, CA; GAVIN SNYDER, Seattle, WA; SCOTT LAMAR COLE, Reichman Jorgensen Lehman & Feldberg LLP, Austin, TX.

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Before MOORE, *Chief Judge*, CHEN, *Circuit Judge*, and  
BARNETT, *Judge*.<sup>1</sup>

Taction Technology, Inc. (Taction) appeals the United States District Court for the Southern District of California’s grant of summary judgment of noninfringement of claims 1–20 of U.S. Patent No. 10,659,885 and claims 1–17 of U.S. Patent No. 10,820,117 (asserted claims). For the following reasons, we vacate and remand for further proceedings.

#### BACKGROUND

Taction owns the related ’885 and ’117 patents, which share a common specification and relate “to tactile transducers that produce bass frequency vibrations for perception by touch.” ’885 patent at 1:20–21. Each asserted claim requires damping the moving portion. Claim 1 of the ’885 patent is representative.

1. An apparatus for imparting motion to the skin of a user, the apparatus comprising:
  - a housing;
  - a plurality of coils capable of carrying electrical current;
  - a plurality of magnets arranged in operative proximity to the plurality of coils;
  - a moving portion comprising an inertial mass and the plurality of magnets;

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<sup>1</sup> Honorable Mark A. Barnett, Chief Judge, United States Court of International Trade, sitting by designation.

a suspension comprising a plurality of flexures that guides the moving portion in a planar motion with respect to the housing and the plurality of conductive coils;

wherein movement of the *moving portion is damped by a ferrofluid* in physical contact with at least the moving portion; and

*wherein the ferrofluid reduces at least a mechanical resonance within the frequency range of 40-200 Hz* in response to electrical signals applied to the plurality of conductive coils.

Taction sued Apple Inc. (Apple), alleging certain iPhone and Apple Watch products (accused products) with haptics technology<sup>2</sup> infringe the asserted claims. J.A. 361–91. During claim construction, the district court concluded the asserted claims are limited to “transducers with highly damped output” and do not include “un-damped linear resonant actuators” based on disclaimers. J.A. 13.

Apple moved for summary judgment of noninfringement. J.A. 4023–52. The district court granted Apple’s motion on two grounds. J.A. 40–81. First, the court struck the infringement opinions of Taction’s expert, Dr. James Oliver, for the “highly damped output” limitation because his opinions contained a new theory in violation of local patent rules and improperly argued claim construction. J.A. 49–63. The court then concluded that without the stricken testimony Taction had no viable claim of infringement. J.A. 62–63.

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<sup>2</sup> Haptics refers to the science of enabling interaction with technology through the sense of touch, including, for example, using vibrations. J.A. 2; Taction Br. 2; Apple Br. 1.

Second, the district court held, even if Dr. Oliver’s infringement opinions were not struck, the accused products do not meet the “highly damped output” limitation based on its revised construction of “highly damped output.” J.A. 63–81. In the summary judgment order, the court revised its construction of “highly damped output” to mean (1) “the output of the transducer is highly damped (i.e., the output is substantially uniform or flat over the normal operating frequency range of the device)”<sup>3</sup>; (2) “that highly damped output is achieved by mechanical damping”; and (3) “the transducer has a Q-factor<sup>4</sup> of less than 1.5.” J.A. 77–78; *see also* J.A. 63–78. The court held no reasonable juror could find infringement because the accused products have a Q-factor greater than 1.5 and “Dr. Oliver fails to provide any specific opinion that the mechanical damping in the accused products is itself sufficient to achieve a highly damped output.” J.A. 78–81. Taction appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

#### DISCUSSION

Taction argues summary judgment was improper under both grounds because the district court abused its discretion by striking Dr. Oliver’s infringement opinions, and it erred in construing the asserted claims. Taction Br. 31–73. We agree as to both.

We review a grant of summary judgment under the law of the regional circuit, here the Ninth Circuit. *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th 900, 907 (Fed. Cir. 2022).

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<sup>3</sup> Taction does not appeal this construction.

<sup>4</sup> The parties agree a quality factor (Q-factor) is a well-known parameter that describes how damped an oscillator is relative to its mass, where an oscillator with a Q-factor greater than 0.5 is underdamped, less than 0.5 is overdamped, and equal to 0.5 is critically damped. Taction Br. 9, 60; Apple Br. 9.

The Ninth Circuit “review[s] the district court’s grant of summary judgment de novo, determining whether, viewing all evidence in the light most favorable to the nonmoving party, there are any genuine issues of material fact and whether the district court correctly applied the relevant substantive law.” *Id.* (quoting *Kraus v. Presidio Tr. Facilities Div./Residential Mgmt. Branch*, 572 F.3d 1039, 1043–44 (9th Cir. 2009)).

### I. Dr. Oliver’s Infringement Opinions

We review a district court’s decision to strike an expert report under the law of the regional circuit, here the Ninth Circuit, which reviews for abuse of discretion. *Treehouse Avatar LLC v. Valve Corp.*, 54 F.4th 709, 713–14 (Fed. Cir. 2022). We review a district court’s interpretation and enforcement of local patent rules for abuse of discretion, determining “whether (1) the decision was clearly unreasonable, arbitrary, or fanciful; (2) the decision was based on an erroneous conclusion of law; (3) the court’s findings were clearly erroneous; or (4) the record contains no evidence upon which the court rationally could have based its decision.” *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1292 (Fed. Cir. 2005) (quoting *Genentech, Inc. v. Amgen, Inc.*, 289 F.3d 761, 774 (Fed. Cir. 2002)).

Taction’s infringement contentions identify the “Taptic Engines” in the accused products as “transducers with highly damped output,” explain that the frequency response in the Taptic Engine is controlled by a “closed loop software controller,” and map the Taptic Engine’s ferrofluid to the “damped by a ferrofluid” limitation. J.A. 3751; J.A. 3777. Dr. Oliver opined a “highly damped output” is one that is “generally uniform or flat” and the Taptic Engine in the accused products satisfies the “highly damped output” requirement because “the closed loop control system combined with the damping provided by ferrofluid produces a generally uniform frequency response.” J.A. 4187 ¶ 608, 4198 ¶ 618 (Oliver Rpt.).

The district court struck Dr. Oliver’s opinions because it found they were based on a new infringement theory Taction had not disclosed in its infringement contentions—the combination of the Taptic Engine’s closed loop control system and ferrofluid satisfies the “highly damped output” limitation. J.A. 49–63. The court held this violated Local Patent Rule 3.1(c), which requires a “chart identifying specifically *where* each element of each asserted claim is found within each Accused Instrumentality.” J.A. 50 (emphasis added). The court explained Rule 3.1(c) includes an unwritten “how” requirement that Taction’s infringement contentions failed to satisfy because Taction did not sufficiently explain how the accused products satisfy the “highly damped output” requirement (i.e., via combination of the Taptic Engine’s closed loop controller and ferrofluid). J.A. 56–57.<sup>5</sup> The court also struck Dr. Oliver’s infringement opinions regarding the “highly damped output” limitation because they constituted an improper attempt to argue claim construction to the jury based on a construction Taction had waived.<sup>6</sup> J.A. 60–63.

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<sup>5</sup> Neither party disputes that Taction’s infringement contentions meet the “where” requirement, and the district court did not hold otherwise. Taction Br. 68–70; Apple Br. 37–38; J.A. 49–57. Additionally, neither party disputes that the district court found Dr. Oliver’s infringement theories “new” for the same reason it found Taction’s contentions failed to disclose “how” the accused products satisfy the limitation. *See* J.A. 57 (“Taction failed to provide the requisite ‘how’ in its final infringement contentions, *which is why* the opinions at issue in Dr. Oliver’s expert report constitute an improper new theory of infringement in violation of the Court’s Patent Local Rules.” (emphasis added)).

<sup>6</sup> The allegedly waived claim construction is that “a person of ordinary skill in the art . . . would understand the

Taction argues the district court abused its discretion by striking Dr. Oliver’s infringement opinions. Taction Br. 66–73. We agree. The court’s interpretation of Rule 3.1(c) as including an unwritten “how” requirement was arbitrary and improperly reads in a requirement that has no support in the plain language of the rule. The district court also fails to show there is a common practice in the Southern District of California requiring plaintiffs to meet an unwritten “how” requirement such that Taction was on notice. The district court relied on an unpublished order from a magistrate judge to show Rule 3.1(c) requires a plaintiff to satisfy both “where” and “how” requirements. J.A. 50, 56, 57 n.4 (citing *Ameranth, Inc. v. Pizza Hut, Inc.*, No. 12-cv-1627-JLS-NLS, 2013 WL 3894880, at \*8 (S.D. Cal. July 26, 2013)). *Ameranth*, however, is not binding in the Southern District of California and relied on cases from the Northern District of California to conclude Rule 3.1(c) includes a “how” requirement. *Ameranth*, 2013 WL 3894880, at \*8. But, unlike Rule 3.1(c), the corresponding local rule in the Northern District of California requires the plaintiff to identify “specifically *where and how* each limitation of each asserted claim is found within each Accused Instrumentality.” J.A. 57 n.4 (emphasis in original). *Ameranth*, therefore, fails to show Taction was on notice that Rule 3.1(c) includes an unwritten “how” requirement. We therefore hold it was an abuse of discretion for the district court to strike Dr. Oliver’s opinions based on an unwritten “how” requirement in Rule 3.1(c).<sup>7</sup>

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phrase ‘highly damped output’ ‘as an output that is generally uniform or flat over the normal operating frequency range of the device in question.’” J.A. 61.

<sup>7</sup> We do not hold that a district court is precluded from adding a requirement that is not in the local rules. Here, however, the parties were not on notice of the requirement and did not have an opportunity to comply.

The district court’s alternative reason for striking Dr. Oliver’s opinions—that Dr. Oliver improperly argued claim construction based on a construction Taction waived—was also an abuse of discretion. The district court cites three paragraphs in Dr. Oliver’s report when discussing the improper claim construction. J.A. 60–63 (citing J.A. 3543–47 at ¶¶ 605–07). At most, this supports striking those offending paragraphs, not other portions of the report where Dr. Oliver discusses the “highly damped output” limitation. *See, e.g.*, J.A. 4183–4207 (showing a portion of Dr. Oliver’s opinions on “highly damped output,” which cover at least ¶¶ 602–27). Moreover, given Dr. Oliver opined that a skilled artisan would have understood “highly damped output” to mean “an output that is generally uniform or flat” and the district court revised its construction of “highly damped output” in the summary judgment order to mean just that, it was unreasonable for the district court to strike his opinions. *Compare* J.A. 61 (Dr. Oliver stating “highly damped output” means “an output that is generally uniform or flat over the normal operating frequency range of the device”), *with* J.A. 68–70 (district court construing “highly damped output” to mean “the output of the transducer is highly damped (i.e., the output is substantially uniform or flat over the normal operating frequency range of the device)”). We hold it was an abuse of discretion to strike Dr. Oliver’s opinions on the “highly damped output” based on the district court’s alternative claim construction argument.

## II. Claim Construction

“We review a district court’s ultimate claim construction and its interpretations of intrinsic evidence de novo and any subsidiary fact findings about extrinsic evidence for clear error.” *Forest Lab’s, LLC v. Sigmapharm Lab’s, LLC*, 918 F.3d 928, 932–33 (Fed. Cir. 2019). Absent lexicography or disclaimer, claim terms are generally given their plain and ordinary meanings to a skilled artisan when read in the context of the specification and



prosecution history. *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Taction argues the district court legally erred in construing the asserted claims as limited (1) to “transducers with highly damped output”; (2) “that highly damped output is achieved by mechanical damping”; and (3) “the transducer has a Q-factor of less than 1.5.” Taction Br. 31–66. We agree with the district court that the asserted claims are limited to “transducers with highly damped output” but do not agree “highly damped” is limited to mechanical damping or that it requires a Q-factor of less than 1.5.

A. “highly damped output”

The district court limited the asserted claims to “transducers with highly damped output” based on prosecution history disclaimer. J.A. 12–13. Taction argues the district court’s construction is erroneous. Taction Br. 31–50. We do not agree.

Prosecution history disclaimer requires clear and unmistakable surrendering of claim scope. *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1322 (Fed. Cir. 2013). During prosecution of U.S. Patent Application No. 15/222,394, which is the parent to both the ’885 and ’117 patents, the patentee stated: “Applicant’s invention, in contrast, is directed to transducers with highly damped output.” J.A. 1050. This is a clear and unmistakable disclaimer.

First, the statement makes clear the invention is limited to transducers with highly damped output. *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (explaining that disclaimer requires the prosecution history make clear the invention is limited to a particular form). Second, the statement mirrors language we have previously held constitutes disclaimer. *Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016) (“We have found disavowal or disclaimer based

on clear and unmistakable statements by the patentee that limit the claims, such as ‘the present invention includes . . .’ or ‘the present invention is . . .’ or ‘all embodiments of the present invention are . . .’”). Third, the disclaimer applies to the ’885 and ’117 patents. It is well-settled that disclaimer applies to patents in the same family when the disclaimer relates “to the same subject matter as the claim language at issue.” *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1314 (Fed. Cir. 2007). Here, the disclaimer was made when the patentee was addressing claim 15 in the parent ’394 application, which includes similar claim language and addresses the same subject matter as the asserted claims. *Compare* J.A. 1061–62 (claim 15), *with* ’885 patent at claim 1.

Taction argues the disclaimer should not apply to the ’885 and ’117 patents because claim 15 of the ’394 application is materially different from the asserted claims given that claim 15 does not include damping by a ferrofluid. Taction Br. 45–47. We do not agree. Identity in claim language is not required for disclaimer to flow through a family. *See, e.g., Ormco*, 498 F.3d at 1314. Here, claim 15 of the ’394 application and the asserted claims relate to the same subject matter—“tactile transducers that produce bass frequency vibrations for perception by touch,” ’885 patent at 1:20–21; J.A. 2419 at 1:23–24—and have many overlapping limitations, including that the “moveable member” or “moving portion” is damped over a frequency range of 40-200 Hz.<sup>8</sup> This is sufficient for the disclaimer to

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<sup>8</sup> Claim 15 of the ’394 application claims a system for imparting vibrations that comprises “at least one conductive coil,” “at least one magnet arranged in operative proximity to the coil,” “a movable member,” and “a suspension consisting of a plurality of flexures that guide the movable member . . . wherein the movable member is damped . . . over the frequency range of 40-200 Hz.”

apply to the asserted claims. *Ormco*, 498 F.3d at 1314. Moreover, the disclaimer was not made as to a particular form of damping; rather, it was made as to damping in the context of the invention being claimed generally. J.A. 1050. This supports the conclusion that it applies to the '885 and '117 patents, which include similar damping limitations as claim 15 of the '394 application.

B. “mechanical damping”

The district court revised its construction of “transducers with highly damped output” to require “that the highly damped output be achieved by mechanical damping,” thereby limiting the asserted claims to mechanical damping. J.A. 70–73. Taction argues the district court’s construction is erroneous. Taction Br. 50–57. We agree.

“We depart from the plain and ordinary meaning of claim terms based on the specification in only two instances: lexicography and disavowal.” *Hill-Rom*, 755 F.3d at 1371 (citing *Thorner*, 669 F.3d at 1365). Here, the district court did not construe the term according to its plain and ordinary meaning, nor did it rely on lexicography or disavowal. J.A. 70–73. Rather, it held the claims are limited to mechanical damping because the specification does not disclose any type of non-mechanical damping. This was erroneous because it improperly reads a limitation from

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J.A. 1061–62. Like claim 15, the asserted claims claim an apparatus for imparting motion to a user that comprises “a plurality of coils capable of carrying electrical current,” “a plurality of magnets arranged in operative proximity to the plurality of coils,” “a moving portion,” and “a suspension comprising a plurality of flexures that guides the moving portion . . . wherein the movement of the moving portion is damped . . . within the frequency range of 40-200 Hz.” See, e.g., '885 patent at claim 1.

the specification into the claims absent lexicography or disavowal. *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012) (“It is not enough that the only embodiments, or all of the embodiments, contain a particular limitation’ to limit a claim term beyond its ordinary meaning.” (cleaned up) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002))).

The district court’s construction also contradicts the intrinsic record. The “transducers with highly damped output” limitation is silent as to how damping is achieved and is based on a disclaimer made during prosecution of claim 15 of the ’394 application. *Supra* § II.A. Claim 15, like the disclaimer itself, does not require any particular type of damping. J.A. 1062 (“wherein the motion of the movable member is damped to reduce the Q-factor of the vibration module”). The specification discloses types of mechanical damping but is broad enough to encompass non-mechanical damping. ’885 patent at 4:6–9 (“vibration of the moving portion *may be damped using a suitable approach*” (emphasis added)). The specification also repeatedly refers to damping without indicating a specific type of damping. *Id.* at Title, Abstract, 3:53–58, 7:4–6. Because there is no lexicography or disavowal, and the intrinsic record does not support a construction limiting the type of damping for the “highly damped output” limitation, we conclude the district court’s construction is erroneous.

### C. “Q-factor of less than 1.5”

The district court revised its claim constructions by limiting the asserted claims to transducers having a “Q-factor of less than 1.5” based on disavowal in the specification. J.A. 73–77. Taction argues the district court’s construction is erroneous. Taction Br. 57–66. We agree.

The standard for disavowal is exacting and requires the specification to clearly and unmistakably show the invention does not include a particular feature. *Openwave Sys., Inc. v. Apple Inc.*, 808 F.3d 509, 513 (Fed. Cir. 2015).

“To find disavowal of claim scope through disparagement of a particular feature, we ask whether ‘the specification goes well beyond expressing the patentee’s preference such that its repeated derogatory statements about a particular embodiment reasonably may be viewed as a disavowal.’” *Id.* (cleaned up) (quoting *Chicago Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1372 (Fed. Cir. 2012)).

The district court concluded there is disavowal because the specification disparages prior art transducers by describing (1) a Q-factor of 1.5 to 3 as a “drawback” and (2) a “high Q-factor” as “useless.” J.A. 74–75 (citing ’885 patent at 2:31–34, 2:63–67). The relevant disclosures in the specification relied on by the district court state:

Such a high Q-factor renders this sort of device *useless* for high fidelity reproduction of low frequency tactile effects in the 15-120 Hz range. . . . Another *drawback* of this approach was that no provision was made for critically damping those transducers. Accordingly, the tactile acceleration frequency response was underdamped, with a claimed Q-factor of 1.5 to 3.

’885 patent at 2:31–34, 2:63–67 (emphases added).

The first disclosure does not clearly and unmistakably disparage a transducer with a Q-factor of 1.5 to 3 because it does not identify a numerical range for a “high” and/or a “useless” Q-factor. ’885 patent at 2:31–34. It is also unrelated to the asserted claims because it discusses undamped linear resonant actuators (LRAs). *Id.* at 2:11–34 (“Another approach in the prior art, also problematic, is the use of . . . undamped linear resonant actuators . . . . Such a high Q-factor renders this sort of device useless . . . .”). The asserted claims, however, require damping, and the

district court construed the asserted claims as precluding un-damped LRAs. J.A. 13.<sup>9</sup>

The second disclosure also does not clearly and unmistakably disparage a transducer with a Q-factor of 1.5 to 3. It teaches a “drawback” of a vibrating module that moves a mass in-plane is that no provision is made for critically damping such a transducer and, as such, the frequency response is underdamped with a Q-factor of 1.5 to 3. ’885 patent at 2:47–67. It appears the district court interpreted “critically damp[ed]” to refer to an ideal level of damping and “underdamped” to be used disparagingly. J.A. 74–75. But “critically damp[ed]” refers to a system that does not vibrate and corresponds to a Q-factor of 0.5, whereas “underdamped” refers to a system that vibrates and corresponds to a Q-factor greater than 0.5. Taction Br. 60; Apple Br. 9. These terms, therefore, can reasonably be interpreted as factual observations rather than disparaging statements. *Massachusetts Inst. of Tech. v. Shire Pharms., Inc.*, 839 F.3d 1111, 1119 (Fed. Cir. 2016) (“Where the alleged disavowal is ambiguous, or even ‘amenable to multiple reasonable interpretations,’ we have declined to find prosecution disclaimer.” (quoting *Avid Tech., Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1045 (Fed. Cir. 2016))); *Openwave*, 808 F.3d at 513; *Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1335 (Fed. Cir. 2009) (“Disavowal requires ‘expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.’” (quoting *Teleflex*, 299 F.3d at 1325)).

General claim construction principles also do not support disavowal. U.S. Patent No. 9,430,921 is related to the ’885 and ’117 patents and includes the same allegedly disparaging statements in its specification. J.A. 2515–16 at 2:34–37, 2:66–3:3. The ’921 patent, however, includes

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<sup>9</sup> Taction does not appeal the district court’s conclusion the patentee disavowed un-damped LRAs.

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claims with limitations requiring “a Q-factor of less than 1.5.” J.A. 2521–23 at claims 1, 14, 18, 20, and 33. Disavowal would render these claim limitations superfluous and meaningless. *Intell. Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1378 (Fed. Cir. 2018) (holding a construction that renders claim language “meaningless” is “disfavored”); *Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (“interpretations that render some portion of the claim language superfluous are disfavored”). Because there is no clear and unmistakable disavowal, and general claim construction principles do not support limiting the asserted claims to transducers having a “Q-factor of less than 1.5,” we conclude the district court’s construction is erroneous.

#### CONCLUSION

For the foregoing reasons, we vacate and remand the district court’s grant of summary judgment of noninfringement for further proceedings consistent with this opinion.

#### VACATED AND REMANDED

#### COSTS

Costs to Taction.