NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

FEDERAL EXPRESS CORPORATION,
Appellant

v.

QUALCOMM INCORPORATED,
Appellee

JOHN A. SQUIRES, UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE,
Intervenor

2024-1237

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2022-00586.

Decided: April 29, 2026

JEFFREY A. BERKOWITZ, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Reston, VA, argued for appellant. Also represented by CHRISTOPHER B. ANDERSON, LUKE HAMPTON MACDONALD, JOSEPH MICHAEL

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Before HUGHES, CUNNINGHAM, and STARK, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* STARK.

Opinion concurring-in-part and dissenting-in-part filed by *Circuit Judge* CUNNINGHAM.

STARK, *Circuit Judge*.

Federal Express Corporation ("FedEx") owns U.S. Patent No. 9,182,231 (the "'231 patent"), which covers a hierarchical sensor network for monitoring packages throughout the shipping process. In February 2022, Qualcomm Incorporated ("Qualcomm") petitioned for *inter partes* review ("IPR") of the '231 patent, alleging that claims 1-15 and 26-30 were unpatentable as obvious in view of U.S. Patent No. 7,212,829 ("Lau"), alone or in combination with U.S. Patent App. No. 2007/0002139 ("Benson"). The Patent Trial and Appeal Board ("Board") instituted review and determined that Qualcomm had proven that the challenged claims were unpatentable under 35 U.S.C. § 103. On appeal, FedEx challenges the

Board's determination as to claims 9 and 23-26. FedEx contends that the Board erred in construing the "short range" and "unable to" limitations of claim 26; in failing to address an argument FedEx raised regarding the non-obviousness of claims 9 and 23-25; and in reaching an obviousness determination for claims 9 and 23-25 lacking substantial evidence support.[1] We agree with the Board's constructions but also conclude that the Board erred in not addressing FedEx's argument as to claims 9 and 23-25. We affirm the Board's final written decision as to claim 26 and vacate and remand for further proceedings as to claims 9 and 23-25.

I

The '231 patent is directed to a sensor network for monitoring shipped packages. The claimed system generally "involves a server that can communicate with a mobile master node in one of the packages over a first communication path, which in turn can communicate over a second communication path with ID nodes placed in other packages, while the ID nodes do not themselves communicate directly with the server over the first communication path." J.A. 3. The sensor network is, thus, hierarchical, with ID nodes placed on each package communicating with a mobile master node, which, in turn, communicates with a

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[1] FedEx additionally argues that the Board erred by failing to adjudicate whether Qualcomm was required, under 35 U.S.C. § 312(a)(2), to name Roambee Corporation as a real party in interest in its petition. FedEx pressed this same argument in a related appeal, which has been resolved by separate opinion issued this same date. *See Fed. Express Corp. v. Qualcomm Inc.*, No. 2024-1236, __ F.4th __ (Fed. Cir. Apr. 29, 2026). Accordingly, as in that case, we reject the portions of FedEx's appeal challenging the Board's real party in interest determination.

server on behalf of the ID nodes that do not themselves communicate with the server.

Independent claim 26 requires "a mobile master node . . . being operative to communicate with a server over a longer range communication path; [and] . . . a plurality of ID nodes . . . being operative to communicate with the mobile master node over a short range communication path but unable to directly communicate with the server." J.A. 386. Pertinent to this appeal, dependent claims 9 and 23-25 require a "power management instruction causing the mobile master node to alter at least one operation of the mobile master node and the ID node to change power consumption." J.A. 385-86.

With respect to claim 26, the Board found that prior art Benson disclosed the claimed "longer range" and "short range" communication path limitations through its teachings of, respectively, a satellite relay communication path and a Wireless Local Area Network ("WLAN") communication path. Benson addresses monitoring remote objects utilizing a network consisting of "master data collection unit[s]," remote sensors, and a server. J.A. 3009-10 ¶¶ 3, 6-12, 26. In Benson's system, remote sensors communicate with the master data collection units which, in turn, communicate with a server. The remote sensors in Benson's system may also communicate with the server directly, bypassing the master data collection units.

In addition to the "short" and "longer range" communication paths, claim 26 further requires that the ID nodes "be[] operative to communicate with the mobile master node . . . but unable to directly communicate with the server." J.A. 386. The Board rejected FedEx's contentions that "unable to" means more than merely not (at present) "operative to" and requires, instead, "a device that lacks the physical capability to communicate directly with the server." J.A. 10 (internal quotation marks omitted). After rejecting FedEx's preferred construction, the Board

declined to expressly construe "unable to." Ultimately, the Board concluded that Benson's disclosure of "an embodiment in which the remote sensor unit is 'not communicating with the central data collection server directly'" disclosed claim 26's requirement that the ID nodes be "unable to communicate with the server," notwithstanding Benson's further disclosure of embodiments that could "involve a remote sensor unit communicating with the central data collection server directly." J.A. 42-43.

In evaluating the patentability of claims 9 and 23-25, which require a "power management instruction causing the mobile master node to alter at least one operation of the mobile master node and the ID node to change power consumption," the Board found that Benson disclosed two distinct power management instructions – an activation request and a task assignment script – and that these teachings satisfied the power management instruction limitations of claims 9 and 23-25. J.A. 44-46.

FedEx timely appealed from the Board's final written decision. We have jurisdiction pursuant to 35 U.S.C. § 141(c) and 28 U.S.C. § 1295(a)(4)(A).

II

We review the Board's claim constructions de novo. *See St. Jude Med., LLC v. Snyders Heart Valve LLC*, 977 F.3d 1232, 1238 (Fed. Cir. 2020). When the intrinsic evidence resolves the claim construction dispute, it is not necessary to consider the extrinsic evidence or the Board's subsidiary factual findings about that evidence. *See Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015). Where necessary to do so, we review the Board's factual findings for substantial evidence. *See St. Jude Med.*, 977 F.3d at 1238. "Substantial evidence review asks whether a reasonable fact finder could have arrived at the agency's decision and requires examination of the record as a whole, taking into account evidence that both justifies and detracts from an agency's decision." *Intelligent Bio-*

Sys., Inc. v. Illumina Cambridge Ltd., 821 F.3d 1359, 1366 (Fed. Cir. 2016) (internal quotation marks omitted).

The Administrative Procedure Act ("APA") requires the Board to consider all evidence and arguments raised before it. *See Provisur Techs., Inc. v. Weber, Inc.*, 50 F.4th 117, 123-24 (Fed. Cir. 2022). We review challenges to the Board's compliance with its APA obligations de novo. *See Sirona Dental Sys. GMBH v. Institut Straumann AG*, 892 F.3d 1349, 1352 (Fed. Cir. 2018).

III

FedEx argues the Board erred by: (a) finding that Benson's WLAN communication path satisfies claim 26's "short range communication path" limitation, a determination FedEx contends is based on an incorrect claim construction; (b) construing "not operative to" as meaning "unable to;" (c) failing to address FedEx's argument that a single power management instruction must alter both an operation of the mobile master node and the ID node(s); and (d) finding Benson's activation request alters the power consumption operation of the mobile master node. We consider each issue in turn.

A

FedEx contends that the Board erred in construing claim 26's "short range communication path" as a relative term, requiring only that it be "shorter" in duration than the claim's "longer range communication path." In particular, FedEx faults the Board for interpreting "short range communication" in a manner that permits this limitation to be satisfied by Benson's disclosure of a WLAN communication path. In FedEx's view, "the '231 specification explicitly describes WLAN as a medium-range communication, distinguishing it from the claimed 'short range' variety." J.A. 39 (quoting J.A. 1056). It necessarily follows, according to FedEx, that claim 26's "short range communication path" does not encompass WLAN. We

disagree with FedEx and, instead, agree with the Board: a "short range communication path" includes a communication path, including WLAN, "so long as the 'longer range communication path' is, in fact, 'longer.'" J.A. 41.

The claim language of claim 26 makes clear that "short range communication path," as used in the '231 patent, is characterized by its relationship to the "*longer* range communication path" that claim 26 also requires. J.A. 386 at 418:48-50 (emphasis added). FedEx's contention that the patent uses "short," "medium," and "longer" range communication paths to describe rigid classes of communication types, each of which FedEx suggests has some manner of fixed boundary – such that, for example, a WLAN communication can only ever be "medium" – is incorrect. Importantly, the claim limitations are "short" and "longer," not "short" and "long." The claim's use of the comparative adjective "longer" – rather than the positive degree adjective "long" – establishes that the two paths are to be evaluated relative to *each other*, not by reference to external fixed standards. A person of ordinary skill would, therefore, understand claim 26 as allowing a wide variety of paths to potentially satisfy the "short" limitation, so long as they are "shorter" than the required "longer" path.

That this is so is further evidenced by the specification, which does not treat "short," "medium," and "longer" in the rigid, mutually-exclusive manner one would expect if the patentee intended "short" paths to be limited to some absolute maximum distance. As our dissenting colleague correctly notes, the specification also uses the term "shorter" in the same sentence as "short," as follows: "a shorter range communication path (such as a short range Bluetooth® path)." Diss. Op. at 4-6 (quoting J.A. 262 at 169:64-65); J.A. 261 at 167:62-63 ("[A] shorter range communication path (e.g., a Bluetooth® formatted short range path)."); *see also* J.A. 178 at 2:64-67 (describing invention as one "where the ID node is operative to communicate with the mobile master node over a second communication path (such as a

shorter range path, like Bluetooth® or NFC") (emphasis added); J.A. 256 at 158:36-38 (contrasting "a first (e.g., longer range) communication path and . . . a second (e.g., shorter range) communication path). It is true that, as a general matter, different terms in a patent are presumed to carry different meanings. *See generally Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008). But it is similarly true that "the mere use of different words" does not, by itself, establish a "materially" different claim scope where the claims "use slightly different language to describe substantially the same invention." *Ohio Willow Wood Co. v. Alps S., LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2013). Here, in at least two instances, the '231 patent treats a "short range" path as an example of a "shorter range" path, indicating the patentee used those terms, at least at times, interchangeably.

Moreover, in other places the specification collapses "medium" and "long" paths into, simply, "medium/long," implying that "medium" paths are not materially distinct from "long" ones. *See* J.A. 57 at Figure 4; J.A. 58 at Figure 5; J.A. 166 at Figure 95; J.A. 210 at 65:31 ("medium/long range"); J.A. 234 at 114:56 (same); J.A. 271 at 167:60 (same); J.A. 205 at 55:55-58 ("Master node 110*a* is typically connected . . . via longer-range wireless communication . . . and/or medium range wireless communication."). The specification likewise pairs "long" with "longer" in a way that mirrors its treatment of "short" and "shorter." *See* J.A. 190 at 26:40-48 ("[E]xemplary master node 110a includes a medium and/or *long-range* communication interface . . . [which] may be implemented with a *longer* range radio.") (emphasis added). We do not suggest that this specification is a model of clarity, but we believe if the patentee intended "short," "medium," and "longer" (or even any one of them) to be strictly demarcated categories, one would expect the specification to say so more clearly. *See Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) ("[T]he claims of the patent will not be

read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.") (internal quotation marks omitted).

The remainder of the intrinsic evidence provides still further support for the Board's construction, defining "short" by its comparative relationship to "longer." The specification explicitly and repeatedly describes how "message[s] . . . [are] formatted for the longer range communication path (such as a longer range WiFi path) *when compared to a shorter range communication path* (such as a *short range* Bluetooth® path)." J.A. 262 at 169:61-66 (emphasis added); *see also* J.A. 253 at 152:53-57 ("[T]he communication path for the master node . . . is a . . . longer-range communication path *when compared to the short-range communication path*.") (emphasis added); J.A. 263 at 171:4-7 ("The message may . . . be formatted for a *longer range communication path when compared to a shorter range communication path* used to communicate between the ID nodes.") (emphasis added); J.A. 380 at 406:32-35 (same). Hence, we conclude that a person of ordinary skill in the art would understand from the specification's approach to describing varying lengths of communication paths that a path, such as a WLAN path, could meet the claim's requirement of a "short" path so long as it is shorter than the claim's "longer" path.

The Board found that the extrinsic evidence also supported its construction. *See* J.A. 40 (citing J.A. 3708-09 and FedEx expert testifying that "what qualifies as short range or long range depends on the particular context . . . . It's a relative term. There's no dictionary definition of a physical distance limit on what qualifies something as short or not which means the term becomes relative in the context of how it's used."). Because the intrinsic evidence fully resolves this claim construction dispute, we need not review the Board's assessment of the extrinsic evidence. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583

(Fed. Cir. 1996) ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.").

FedEx's arguments for its construction, which would exclude WLAN paths from providing the "short range communication path," are unavailing. FedEx principally insists that "[b]y categorizing WLAN as 'medium range,' the patent excludes it from the scope of 'short range.'" Open. Br. at 47 (quoting J.A. 183 at 11:53-59); *see also* J.A. 1211 (FedEx arguing to Board that "[w]hatever 'short-range' means in the abstract, the specification explicitly excludes 'WLAN' from its scope"). FedEx's contention is based on a single sentence from the specification, which reads: "Master node 110a is *typically* connected to server 100 through network 105 via . . . medium range wireless communication (*e.g.*, wireless local area data networks [WLAN] or Wi-Fi)." J.A. 183 at 11:55-59 (emphasis added). Given that the pertinent claim language is "short" and "longer," this one sentence – which expressly calls out WLAN and Wi-Fi as "typical" examples of medium range communications – constitutes neither lexicography nor a clear and unmistakable disclaimer of WLAN as potentially being, in some embodiments of the claim, a "short range communication path." *Id.*; *see also Thorner v. Sony Comp. Entm't Am. LLC*, 669 F.3d 1362, 1366-68 (Fed. Cir. 2012) ("The standard for disavowal of claim scope is . . . exacting. . . . [D]isclosing embodiments that all use the term the same way is not sufficient to redefine a claim term."); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002) ("The patentee may demonstrate an intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). We are persuaded that, in the full context of the claim language and the specification, a person of ordinary skill would understand this one reference to WLAN as "medium

range" as an exemplary embodiment, one in which some other type of path (in this embodiment, "Bluetooth® formatted communications") meets the "short range" limitation (because it is *shorter* than WLAN) and yet another type of message (in this same embodiment, "cellular") meets the "longer range" limitation. Such an artisan would not take this sentence to mean that the *only* role a WLAN communication path can play in *all embodiments* of the claims is as a "medium" or "longer range" path.

Thus, we agree with the Board that the correct construction of "short range communication path" is broad enough to encompass communication paths that are *shorter than* the claimed "longer range communication path." A WLAN path, then, may, in some claimed embodiments, be *shorter than* a *longer* communication path used in that same embodiment. One such embodiment is taught in Benson, which uses a WLAN path as well as a satellite relay path, where the latter is undisputedly longer than the WLAN path, leading a skilled artisan to understand that (in that embodiment) the WLAN is the "short" range path.

B

Claim 26 further requires that the ID nodes "be[] operative to communicate with the mobile master node . . . but unable to directly communicate with the server." J.A. 386 at 418:39-42. FedEx argued to the Board that this claim limitation is satisfied only by "a device that lacks the physical capability to communicate directly with the server" and, thus, can never be configured to enable such communications. J.A. 10, 1045. FedEx additionally argued that "[a] device physically capable of communicating with a server, but refraining from doing so for certain functions, during certain times, or through programmatic disabling, does not meet this test," because such a device could on occasion be configured to enable such communications. J.A. 1045; *see also* J.A. 1050 (FedEx arguing key is that device "lack[s] the physical capability (e.g., circuitry)" and Benson

teaches the opposite" of "a remote sensor physically incapable of communicating" because "*the circuitry* for Benson's remote and master units is *identical*") (emphasis added). The Board rejected this proposed construction as unsupported by the intrinsic evidence. It read the specification to disclose embodiments in which the only factor controlling whether a certain device is described as "unable to" communicate is its current programming, *not* its physical capabilities. *See* J.A. 12. The Board identified two embodiments of smartphone 200 that are both "'unable' and 'not operative to' communicate with a server when [] not presently configured that way through software" – even though the same physical device could be reprogrammed to enable such communication. *Id.* (discussing J.A. 232 at 110:13-19). The Board further found no intrinsic evidentiary support for FedEx's argument that there is a "meaningful difference" between "not operative to," as used in claim 1, and "unable to," as used in claim 26. J.A. 12.

We again agree with the Board. The claim language "not operative to" is broad enough to encompass devices that are physically incapable of direct server communication as well as devices that are presently unable to do so but could be reprogrammed to enable such communication. FedEx's construction would improperly import a "permanent physical incapacity" limitation into the claim. The plain and ordinary meaning of "unable to" is broader than just permanent lack of physical capability, and one of ordinary skill in the art would not read the specification as narrowing the term to only such embodiments. To the contrary, as the Board observed, the specification discusses an embodiment of smartphone 200 that is described as "not operative to" communicate with a server in one configuration, even though different programming seemingly could configure that same device to be able to communicate with a server. J.A. 12. As the Board persuasively observed, the claims and specification use "not operative to" and "unable to" as having the same meaning.

Under the Board's correct construction, it is undisputed that Benson's disclosure of remote sensor units that do "not communicat[e] with the central data collection server directly" renders obvious claim 26's "unable to" limitation, even though Benson's embodiments could be programmed to communicate directly with a central server. J.A. 42-43 (internal quotation marks omitted). Thus, our affirmance of the Board's constructions – of "short range communication path" and "not operative to" – compels us to affirm the Board's conclusion that Qualcomm proved claim 26 unpatentable as obvious.

C

Claims 9 and 23-25 require a "power management instruction . . . causing the mobile master node to alter [(1)] at least one operation of the mobile master node and . . . [(2)] at least one operation of the ID node." J.A. 385 at 416:40-47; J.A. 386 at 418:13-29. FedEx argued to the Board that "a single 'power management instruction' must cause the mobile master node to alter at least one operation of *both* the mobile master node and the ID node, and that Qualcomm ha[d] not shown that either one of its two alleged instructions has that effect." J.A. 45. We agree with FedEx that the Board's failure even to address this argument means it acted arbitrarily, capriciously, or otherwise not in accordance with law.

Under the APA, "the Board is obligated to articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Alacritech, Inc. v. Intel Corp.*, 966 F.3d 1367, 1373 (Fed. Cir. 2020) (internal quotation marks omitted). The Board failed to address FedEx's argument that claims 9 and 23-25 require the same "power management instruction" to cause a mobile master node to alter *both* an "operation of the mobile master node" *and* "an operation of the ID node." Instead, the Board found this limitation taught by Benson's disclosures of an "activation request" and, separately,

of a "task management script." J.A. 45-47. But the Board did not assess whether either Benson's activation request or task management script altered both the mobile master node *and* the ID node. Instead, the Board simply noted, without evaluating, FedEx's argument that its claims require altering both nodes simultaneously.

Qualcomm invites us to read the Board's acknowledgment of FedEx's argument as adoption of Qualcomm's position that the two distinct requests (i.e., the activation request and the task management script) render the claim limitation obvious. We cannot, however, "reasonably discern" the basis for the Board's rejection of FedEx's argument or even whether the Board considered the issue. *See CQV Co., Ltd. v. Merck Pat. GmbH*, 130 F.4th 1344, 1349-50 (Fed. Cir. 2025) (internal quotation marks omitted). We are not permitted to speculate. *See Gechter v. Davidson*, 116 F.3d 1454, 1457 (Fed. Cir. 1997) ("Necessary findings must be expressed with sufficient particularity to enable our court, without resort to speculation, to understand the reasoning of the Board."). Much like the Board analysis we found lacking in *Alacritech*, 966 F.3d at 1371, here "the Board did not endorse, adopt, or otherwise suggest that it was persuaded by th[e] arguments" made by Qualcomm – i.e., that a single instruction resulting in both alterations was not necessary or that one of the two instructions disclosed in Benson actually results in both alterations. Thus, "we cannot infer . . . that the Board necessarily adopted [Qualcomm's] position." *Id.* at 1372.

Therefore, we "vacate the Board's obviousness determination as to claims [9 and 23-25] and remand for the Board to reconsider whether the asserted prior art teaches or suggests" the "power management instruction" limitation, after evaluating (and explaining its analysis of) FedEx's argument that the limitation requires alterations to both the mobile master node and ID nodes be achieved by a single instruction. *Id.* at 1373.

D

Regarding the "power management instruction" limitation of claims 9 and 23-25, FedEx additionally argues that the Board erred in finding that Benson's activation request alters an operation of the mobile master node. The parties agree that Benson does not explicitly state what causes the master unit to exit its hibernation state. We review the Board's findings as to what the prior art teaches for substantial evidence. *See In re Mouttet,* 686 F.3d 1322, 1334 (Fed. Cir. 2012).

Substantial evidence supports the Board's finding. Benson's Figure 4, reproduced below, depicts how, if no activation request is received from a server, the system returns to its hibernation state.

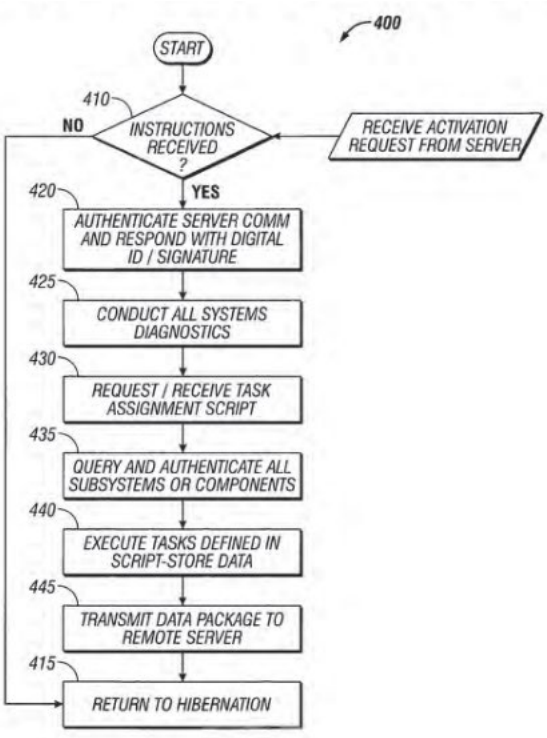

FIG. 4

J.A. 2999. The Board found that this figure "appear[s] to indicate that [the activation request's] purpose is to request activation by the master unit." J.A. 46. The Board further credited Qualcomm's expert's testimony "that the request is what wakes the master unit from its hibernation" and was unpersuaded by FedEx's expert's opinion that "the master unit wakes of its own volition." *Id.* Together, Benson's Figure 4 and Qualcomm's expert's testimony could persuade a reasonable factfinder that Benson's activation request awakens its master unit from hibernation and, therefore, causes an alteration of Benson's "mobile master node." Accordingly, substantial evidence supports the Board's finding that Benson discloses the "power management instruction" of claims 9 and 23-25. Therefore, this finding may not be disputed on remand.

IV

We have considered the parties' remaining arguments and find them without merit. Accordingly, the final written decision of the Board is vacated and remanded as to claims 9 and 23-25 and affirmed as to claim 26.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED-IN-PART

COSTS

Each party to bear its own costs.

NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

FEDERAL EXPRESS CORPORATION,
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QUALCOMM INCORPORATED,
Appellee

JOHN A. SQUIRES, UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE,
Intervenor

2024-1237

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2022-00586.

CUNNINGHAM, *Circuit Judge*, concurring-in-part and dissenting-in-part.

I agree with the majority that (1) the part of FedEx's appeal regarding whether Qualcomm was required, under 35 U.S.C. § 312(a)(2), to name Roambee as a real party in interest should be rejected, Maj. Op. at 3 n.1; (2) the Board

correctly construed "unable to," *id.* at 11–13; (3) the Board failed to address FedEx's argument that claim 9 and claims 23–25 require the same "power management instruction" to cause a mobile master node to alter both an "operation of the mobile master node" and "an operation of the ID node," *id.* at 13–14; and (4) substantial evidence supports the Board's finding that Benson's activation request alters an operation of the mobile master node, *id.* at 15–16. I write separately because in my view the Board erred by construing a "short range communication path" to mean *any* communication path, "so long as the 'longer range communication path' is, in fact, 'longer.'" J.A. 41; *cf.* Maj. Op. at 6–11.

As always, I start with the claim language. "Short" does not mean "shorter." A six-hour tennis match is not "short" because one tennis match has lasted longer and concluded after eleven hours. Someone running her first marathon is not going for a "short" run merely because "longer" ultramarathons exist. And a half-court basketball shot is not "short range," despite a full-court shot being "longer range." Instead, what these examples reveal is that "short" is a "positive adjective," that "simply expresses an object's quality without reference to any other thing." *The Chicago Manual of Style* ¶ 5.85 (15th ed. 2003); *see also* Maj. Op. at 7 (noting that "long" is a "positive degree adjective"). Positive adjectives contrast with "comparative adjective[s]," which "express[ ] the relationship between two things in terms of a specified quality they share." *The Chicago Manual of Style* ¶ 5.86 (15th ed. 2003); *see also* Rodney Huddleston & Geoffrey K. Pullum, *The Cambridge Grammar of the English Language*, 1122–23 (2002) (distinguishing the "plain" form of an adjective such as "tall" from the "comparative" form such as "taller"). This distinction matters because whereas comparative adjectives do not impart information about the object itself, positive adjectives like "short" do. The sentence stating that "John is taller than Mary" does not imply that either John or Mary is tall.

See Renate Bartsch, *The Grammar of Relative Adjectives and Comparison*, *in* Formal Aspects of Cognitive Processes 168, 168–70 (1975). Thus, the majority's emphasis on its assertion that "longer" is a comparative term is misplaced. Maj. Op. at 7. Even accepting the majority's contention that "longer" is a comparative term, "short" remains a positive adjective with "external fixed standards." *Id.* To hold otherwise would violate the claim construction principle that "[a] claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so." *Lashify, Inc. v. Int'l Trade Comm'n*, 130 F.4th 948, 964 (Fed. Cir. 2025) (alteration in original) (quoting *Merck & Co v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005)). Instead, I would conclude that the plain and ordinary meaning of "short" and a comparative "longer," when used in conjunction, is that one item must be "longer" than the other item, which must independently be "short."

In support of its conclusion that "short" is a comparative adjective, the majority emphasizes that "the claim limitations are 'short' and 'longer,' not 'short' and 'long.'" Maj. Op. at 7. True, but the claim limitations are also not "shorter" and "longer." *Cf. id.* at 11 ("[T]he correct construction of 'short range communication path' is broad enough to encompass communication paths that are *shorter than* the claimed 'longer range communication path.'"). The majority recognizes that the plain meaning of "long" is that it is "a positive degree adjective" but does not explain why the same would not apply to "short." *Id.* at 7. Indeed, under the majority's construction of "short," a long range communication path can be "short range," provided that it is shorter range than the "longer range communication path." *See id.* I would reject a construction that defines a "short range communication path" to encompass a long range communication path. Instead, in my view, claim 26 of the '231 patent requires that a first communication path be "short range," without defining a precise

range, and requires that a second communication path be "longer range" than the first path. That second communication path could be long range, medium range, or, in many cases, "short range," so long as it is still "longer range" than the first communication path. By contrast, I would conclude that the first, "short range" communication path could only be "short range."

The specification confirms that "short" is a positive, not a comparative adjective.[1] The specification discloses an embodiment where a master node has a "short-range radio . . . used for communicating with other nodes" and a "medium and/or long-range radio for communication with the server." '231 patent col. 13 ll. 20–25. In this embodiment, either the medium or long-range radio would have a longer range than the "short-range" radio. Thus, it stands to reason that by claiming a "short range" communication path and a "longer range" communication path, claim 26 of the '231 patent covers a "short range" path and either a "medium range" or a "long range" path. Similarly, the specification discloses an embodiment where a "first communication interface" communicates with "the mobile user device operating as an advertising ID node over a short-range communication path, such as over a Bluetooth® Low

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[1] I do not think this case is a lexicography or disavowal case. *Cf.* Maj. Op. at 10–11; J.A. 40–41. Instead, I think the plain and ordinary meaning of "short" not being shorter is supported by the patent's consistent usage of "short" as a positive, rather than a comparative, adjective. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) ("[C]laims must be construed so as to be consistent with the specification, of which they are a part." (quotation marks and citation omitted)); *Hologic, Inc. v. SenoRx, Inc.*, 639 F.3d 1329, 1338 (Fed. Cir. 2011) (describing "consistent[ ] and exclusive[ ]" use of a term in the specification as supporting a construction).

Energy formatted signal communication path" while a "second communication interface" uses a "wireless higher-speed, longer-range communication path when compared to the short-range communication path of the first communication interface." '231 patent col. 152 ll. 45–57. In other words, the "short-range communication path" must be "short range" like a Bluetooth® Low Energy communication path, while the "longer-range communication path" is "longer-range . . . when compared to the short-range communication path." *Id.* col. 152 ll. 55–57. Meanwhile, there is no embodiment where "short range" is used to refer to a medium or long range communication path, or where "short" is used as purely comparative. "Short" is consistently used as a positive adjective.

On the other hand, when the specification states that one communication path is "shorter" than another communication path, it uses the comparative adjective "shorter." The majority's own examples prove the point. *See* Maj. Op. at 9 (highlighting a "longer range communication path when compared to a shorter range communication path." (emphasis omitted) (quoting '231 patent col. 171 ll. 4–7)). More particularly, the specification includes an example of a message being "formatted for the longer range communication path . . . when compared to a shorter range communication path (such as a short range Bluetooth® path)." '231 patent col. 169 ll. 61–66; *see* Maj. Op. at 9. In this example, "shorter range" is used as a comparative adjective, while "short range" is used a positive adjective, with Bluetooth® given as a specific example of a "short range" communication path that is "shorter range" than a "longer range communication path." In my view, this example is an instance where "a 'short range' path [i]s an example of a 'shorter range' path," rather than a case of "the patentee us[ing] those terms, at least at times, interchangeably." Maj. Op. at 8. The specification indicates that there are multiple ranges that could be "shorter range" than the "longer range" communication path (e.g. a short range or a

medium range communication path), with "short range" being one such type. Accordingly, by claiming a "short range" communication path, claim 26 is limited to a specifically "short range" path.

Lastly, the majority contends that because "the specification collapses 'medium' and 'long' paths into, simply, 'medium/long,'" it implies that "'medium' paths are not materially distinct from 'long' ones." *Id.* at 8. There are three problems with the majority's analysis on this point. First, the specification does not collapse "medium" and "long" range paths. Instead, it merely says that in some embodiments, either a medium or a long range path could be used as a path that is longer than a short range path. *See id.* at 8–9 (collecting examples of the specification stating "medium/long" or "medium and/or long"). The majority does not identify any type of communication path that is referred to in some places as "medium range" and in some places as "long range." Second, even if "medium" and "long" were interchangeable, it would say nothing about "short." I agree with the majority that either a "medium" or a "long" range communication path is "longer range" than a "short range communication path," but that does not mean that "short range" can include long range communication paths. Third, even if the categories of short, medium, and long were fungible, it does not follow that "short" is a comparative adjective. The majority does not explain why *some* overlap between categories of communication paths supports the Board's broader construction that "short range communication path" means *any* communication path, so long as there is a "longer range" communication path that is longer. *See* J.A. 41; Maj. Op. at 6–11. Because claim 26 refers to "short range," not shorter range, I would conclude

that it requires a "short range communication path" rather than a shorter range communication path.[2]

In my view, once a person of ordinary skill in the art determined that "short range" was a positive adjective, rather than a comparative adjective, he or she would look to the specification for context and to define the limits of "short range." The '231 patent gives a few examples of methods of short range communication: "Bluetooth®," "Bluetooth® Low Energy," "ultra-wide-band impulse radio communications, ZigBee protocols, [and] IEEE 802.15.4 standard communication." '231 patent col 11. ll. 54–55; *id.* col. 26 ll. 15–24. Meanwhile, the specification provides examples of medium range and long range wireless communication, such as "[WLAN] or Wi-Fi," "IEEE 802.11g," and "cellular radio." *Id.* col. 11 ll. 55–60, col. 26 ll. 40–62. Indeed, Qualcomm does not present any serious argument that WLAN is a "short range" communication path if "short" is not a comparative adjective.[3] *See* Appellee's Br. 29–41. In my view, a person of ordinary skill in the art

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[2] I agree with the majority that the intrinsic evidence fully resolves this claim construction dispute without the need to resort to the extrinsic evidence. Maj. Op. at 9–10 (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996)). To the extent that Qualcomm contends that FedEx's expert conceded that short range is a "relative term[ ]" Appellee's Br. 32, he was merely explaining that "short" has no "physical distance limit" and that the "particular context" of the patent was necessary. J.A. 3895.

[3] The Board concluded that "Lau (via its provisional) already discloses the use of Bluetooth for communication between tracking objects and a nearby position-computing device." J.A. 41. As Qualcomm concedes, it never made this argument, and the Board erred by reaching it. Appellee's Br. 41 n.10.

would conclude that "a short range communication path" does not include WLAN, which is instead described as a medium range communication path. *See* '231 patent col 11 ll. 55–60. Accordingly, I would conclude that the Board erred by holding that Benson discloses a "short range communication path," J.A. 39–42, and I would reverse as to claims 26–30. I respectfully dissent.