

NOTE: This disposition is nonprecedential.

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

G+ COMMUNICATIONS, LLC,
Appellant

v.

SAMSUNG ELECTRONICS CO., LTD.,
Appellee

2024-2048

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2023-
00171.

Decided: July 30, 2026

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Before DYK, SCHALL, and PROST, *Circuit Judges*.

PROST, *Circuit Judge*.

G+ Communications, LLC (“G+”) appeals from an inter partes review (“IPR”) final written decision by the U.S. Patent Trial and Appeal Board (“Board”) determining that claims 1–5, 7–9, 14, and 20 of U.S. Patent No. 10,736,130 (“the ’130 patent”) are unpatentable. For the following reasons, we affirm.

BACKGROUND

I

The ’130 patent claims a method and device for coding uplink signal transmission applicable to 5G mobile communications systems. ’130 patent Abstract; *see* Appellant’s Br. 2, 5. Information in modern cellular systems is communicated between a base station and a cellular phone in the form of data packets. The data packets are not always received correctly, and when this happens, the receiving entity (for example, the base station) notifies the transmitting entity if the received packet has an error. This notification takes the form of an acknowledgment (“ACK”) or a non-acknowledgment (“NACK”) signal, communicated in the form of a signal sequence.

The ’130 patent explains that a “Transmission Time Interval (TTI) is a basic unit for scheduling downlink and uplink transmission in a time domain.” ’130 patent col. 1 ll. 14–18. In the prior-art Long Term Evolution (“LTE”) wireless technology, one TTI has “two time slots” that are each “0.5 ms long.” *Id.* at col. 1 ll. 18–25. The patent notes that reducing the TTI length is desirable, but doing so calls for a new transmission structure for sending ACK and NACK signals. *Id.* at col. 1 ll. 43–58. The patent’s purported improvement is making cellular communications faster by reducing the time needed to transmit these signals. *Id.* at col. 2 ll. 50–55. It accomplishes that improvement, in part, by mapping predefined sequences of a

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certain length (e.g., twelve) to a number of subcarriers matching the length of the predefined sequence. *See id.* at col. 2 ll. 3–11. Claim 1 of the '130 patent recites:

[1pre] A method for uplink control signal transmission, comprising:

[1a] sending, by a user terminal, K predefined sequences on M transmission symbols in a Transmission Time Interval (TTI) to send B-bit uplink control information,

[1b] wherein M is a positive integer, K is an integer, $1 \leq K \leq 2^B$, B is an integer greater than or equal to 1,

[1c] on each of the M transmission symbols, one of the K predefined sequences is sent and

[1d] each of the K predefined sequences has a length of N and is mapped to N subcarriers of the transmission symbols corresponding to the each of the K predefined sequences,

[1e] wherein $N=2n$ with n being a positive integer.

Id. at claim 1.

II

Samsung Electronics Co., Ltd. (“Samsung”) filed a petition for IPR challenging claims 1–5, 7–9, 14, and 20 of the '130 patent. The Board found that U.S. Patent No. 10,615,925 (“Kwak”) anticipated all challenged claims. J.A. 39. Relevant to the present appeal, the Board relied upon Kwak’s Figures 43(b) and 44 as disclosing limitation 1d. J.A. 30–34. Figure 43(b) describes a TTI with two slots and “one symbol per slot.” Kwak at col. 73 ll. 53–54. Figure 44 also depicts a two-slot arrangement and further specifies “a transmission method based on a base sequence,” where “a different CS [(cyclic shift)] index may be applied to each slot.” *Id.* at col. 74 ll. 9–12.

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Before the Board, G+ argued that Kwak does not disclose limitation 1d because Figure 44 must utilize a “comb structure.” *See* J.A. 363–64, 380. Specifically, G+ contended that, because the purported “comb structure” reserves every other subcarrier for a demodulation reference signal (DMRS), the comb structure results in only “6 subcarriers available to transmit a 12-length” predefined sequence in Kwak (instead of the 12 subcarriers required by the claim). Appellant’s Br. 15; *see also* J.A. 380. In other words, according to G+, because the relevant figures in Kwak disclose transmission using a comb structure, limitation 1d’s requirements of an N-length predefined sequence mapped to N subcarriers could not be met. J.A. 363–66. The Board rejected G+’s “comb structure” arguments, finding that “nothing . . . in Kwak establishes Figure 44 as a comb structure,” and further noting that while “Figure 44 ‘may’ be a comb structure,” it “is not necessarily one.” J.A. 32–34. This forms the basis of G+’s appeal.

G+ timely appealed from the Board’s final written decision finding that Kwak anticipates all challenged claims. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

The Board’s decisions are reviewed “under the standards provided in the Administrative Procedure Act (‘APA’), 5 U.S.C. § 706.” *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 1376, 1379 (Fed. Cir. 2016). Under the APA, the Board’s actions “are to be set aside if arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law or unsupported by substantial evidence.” *Pride Mobility Prods. Corp. v. Permobil, Inc.*, 818 F.3d 1307, 1313 (Fed. Cir. 2016) (cleaned up).

“Under 35 U.S.C. § 102 a claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference.” *King Pharms., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1274 (Fed. Cir. 2010) (cleaned up). “[A]nticipation is a question of fact subject to

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substantial evidence review.” *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1068 (Fed. Cir. 2017).

The issues G+ presents on appeal are narrow: (1) whether the Board violated the APA by relying on an argument that G+ supposedly did not have adequate notice of or an opportunity to respond to; and (2) whether substantial evidence supports the Board’s finding that Kwak discloses limitation 1d of the ’130 patent. We address each in turn.

I

G+ argues that the Board violated the APA by relying on a new argument made by Samsung at the oral hearing.¹ Appellant’s Br. 21–22. We disagree.

Specifically, G+ challenges the Board’s reasoning that “Figure 44 ‘may’ be a comb structure but is not necessarily one,” J.A. 33, and asserts that this argument was raised “for the first time by [Samsung] at the oral hearing,” Appellant’s Br. 21–22. In other words, Figure 44 discloses embodiments without a comb structure. Where the specification states that Figure 44 “may” disclose a comb structure, it implies that in some embodiments, there is no comb structure. At the oral hearing, Samsung’s attorney stated:

So, they start with saying figure 38 shows a comb structure. I don’t disagree with that. Figure 38 does

¹ We note that while G+ claims it “had no meaningful opportunity to respond” to Samsung’s purportedly new argument, Appellant’s Br. 18, it also did not seek any recourse with the Board. *See Yeda Rsch. v. Mylan Pharms. Inc.*, 906 F.3d 1031, 1040 (Fed. Cir. 2018) (finding no due process violation where appellant “could have, but did not, address [new prior art] at the oral hearing or seek leave to file a surreply to substantively respond . . . as encouraged by our precedent”).

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show a comb structure. But then they say, well, 43 must use a comb structure. When Kwak says, at the bottom of slide 18, for figure 43, may use a comb structure. Then the next, go to figure 44's description, which again says it may use the structure of figure 44, but then [G+] says—sorry, of 43, but [G+] says, no, 44 must use the structure of 43, which must be a comb structure. There's a lot of possibilities that are turned into absolutes by [G+] to make this argument.

J.A. 563–64. G+ contends that these statements constituted a new argument and that *Dell Inc. v. Accelaron, LLC* requires vacatur here due to the Board's reliance on that new argument in its final written decision. 818 F.3d 1293 (Fed. Cir. 2016). In *Dell*, the petitioner presented a new argument for unpatentability at the oral hearing that was premised on a previously unasserted portion of the prior art. *Id.* at 1301. The patent owner “was given no prior notice of that contention,” and “no opportunity . . . to supply evidence” at the oral hearing. *Id.* The court vacated and remanded the Board's finding on that claim, concluding that the Board relied on this new argument “alone for an essential part of its anticipation ground of decision.” *Id.* We do not find *Dell* applicable here.

The notion that G+ had no notice of the “may” language or the arguments surrounding it is one that we squarely reject. The “comb structure” issue was initially raised by G+. J.A. 363–64; *see also* J.A. 465, 469. And the “may” language is found in Kwak itself. *See* Kwak, col. 74 ll. 9–12 (explaining, with reference to Figure 44, that “if a TTI includes 2 symbols, a transmission method based on a base sequence *may* be applied to the structure of FIG. 43 and a different CS index *may* be applied for each slot.” (emphasis added)). Indeed, G+'s briefing before the Board referenced the same portions of Kwak cited by the Board in its decision. *Compare* J.A. 363–64, *with* J.A. 33. Further, Samsung's argument at the oral hearing was consistent with its

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position over the course of the IPR: that Kwak did not—as G+ averred—require that Figure 44 be a comb structure. See J.A. 413–16, 420. “Parties are not barred from elaborating on their arguments on issues previously raised.” *Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019); see *Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1347 (Fed. Cir. 2001).

In addition, it is implausible to conclude, as G+ asks us to do, that “[b]ased on the ‘may’ language, the Board rejected G+’s comb structure arguments without substantive analysis.” Appellant’s Br. 25; see *Novartis AG v. Torrent Pharms. Ltd.*, 853 F.3d 1316, 1326 (Fed. Cir. 2017) (concluding that no APA violation occurred where the Board used a disputed reference to “bolster its analysis” and other substantial evidence supported the Board’s conclusion). The Board’s reference to the “may” language in Kwak was also just one piece of the Board’s discussion—three sentences in a roughly four-page discussion of the relevant figures and limitations. J.A. 30–34. For example, the Board also approvingly cited Samsung’s expert’s testimony. J.A. 32. Thus, for the reasons outlined above, the Board’s final written decision did not violate the APA.

II

G+ also raises two substantial-evidence challenges: (1) whether “substantial evidence support[s] the Board’s finding that Figure 44 does not necessarily include a comb structure even though the Board found that other limitations introduced with ‘may’ language are disclosed in Kwak”; and (2) whether substantial evidence supports the Board’s finding that Kwak discloses limitation 1d of the ’130 patent. Appellant’s Br. 1, 30. Both challenges fail.

To start, G+’s first argument is that the Board’s reasoning regarding Figure 44 is inconsistent with its finding other limitations of claim 1 to be *disclosed* in Kwak when Kwak described many of its features with “may” language. Appellant’s Br. 29. G+ contends it “was entitled to demand

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that the ‘may’ language be interpreted consistently across the specification,” implying that “may” should be read to exclude or include, but not both. Appellant’s Br. 27. As Samsung correctly points out, however, “a prior art reference anticipates a claim even if it does so only in some modes of operation.” Appellee’s Br. 36 (quoting *ParkerVision, Inc. v. Qualcomm Inc.*, 903 F.3d 1354, 1363 (Fed. Cir. 2018) (“[A] prior art product that sometimes, but not always, embodies a claimed method nonetheless teaches that aspect of the invention.”)). G+’s argument on this point is unavailing.

G+’s second substantial-evidence challenge also fails. The Board set forth both parties’ arguments and explained that Samsung’s were persuasive. J.A. 32–33. It found that “[Samsung] correctly notes that nothing . . . in Kwak establishes Figure 44 as a comb structure.” J.A. 32 (citing J.A. 413–19; J.A. 2003–06 ¶ 17). The Board also credited Samsung’s expert’s testimony explaining that Figure 44 of Kwak lacked shading that distinguishes it from embodiments presented in other figures using shading to indicate the presence of certain regions necessary for comb structures. See J.A. 32; *Acoustic Tech., Inc. v. Itron Networked Sols., Inc.*, 949 F.3d 1366, 1373–74 (Fed. Cir. 2020) (“[E]xpert testimony can constitute substantial evidence of anticipation when the expert explains in detail how each claim element is disclosed in the prior art reference.”). The Board thus concluded that Kwak discloses limitation 1d. J.A. 34 (“We found against [G+]’s argument in our analysis of limitation [1c]. We are not presented with any additional argument or evidence beyond that discussed previously.”). Substantial evidence supports the Board’s challenged findings.

CONCLUSION

We have considered G+’s remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm.

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AFFIRMED