

NOTE: This disposition is nonprecedential.

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

INTELLECTUAL VENTURES II LLC,
Appellant

v.

**ERICSSON INC., TELEFONAKTIEBOLAGET LM
ERICSSON, GOOGLE INC.,**
Appellees

2016-1739, 2016-1740, 2016-1741

Appeals from the United States Patent and Trade-
mark Office, Patent Trial and Appeal Board in Nos.
IPR2014-00915, IPR2014-00919, IPR2014-01031.

Decided: May 8, 2017

PETER J. MCANDREWS, McAndrews, Held & Malloy,
Ltd., Chicago, IL, argued for appellant. Also represented
by GREGORY SCHODDE, ANDREW B. KARP, STEVEN JOHN
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J. ANDREW LOWES, Haynes & Boone, LLP, Richardson,
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DARYL JOSEFFER, King & Spalding LLP, Washington, DC, argued for appellee Google Inc. Also represented by JOHN C. ALEMANNI, Kilpatrick Townsend & Stockton LLP, Winston-Salem, NC; DAVID A. REED, Atlanta GA; STEVEN MOORE, San Francisco, CA.

Before REYNA, WALLACH, and CHEN, *Circuit Judges*.

REYNA, *Circuit Judge*.

Following institution of *inter partes* reviews, the United States Patent Trial and Appeal Board found certain claims of Intellectual Ventures' patents anticipated by or obvious over the prior art. Intellectual Ventures appeals from those decisions, arguing that the Board denied it procedural due process and misconstrued two claim terms. We find no due process violation and find that the Board's claim construction was correct. We affirm.

BACKGROUND

The Intellectual Ventures Patents

Intellectual Ventures II LLC's ("Intellectual Ventures") patents—U.S. Patent Nos. 7,848,353 ("353 patent") and 8,396,079 ("079 patent")¹—disclose a method for selection of appropriate bandwidth in a multi-bandwidth communication system. Wireless communication requires one unit to transmit data and another unit, a base station, to receive it. To communicate properly, the two units must have synchronized frequencies. J.A. 434 (col. 1 ll. 22–29); *see also* J.A. 419 (Figure 1), 423–424.

¹ The '079 patent is a continuation of the '353 patent, and they share similar specifications. *See* J.A. 417.

The patents teach a method to synchronize base stations and remote units on the appropriate frequency more efficiently than the prior art. J.A. 434 (col. 2 ll. 6–8), 426–427.

The patents teach that the base station transmits a signal with two portions, the first of which has a lower “chip rate” than the second. J.A. 426, 2920. The signal’s bandwidth corresponds to the chip rate with which it is transmitted. *Id.* Thus, the lower the chip rate, the lower the bandwidth. Despite this correlation, the parties agree that chip rate is not synonymous with bandwidth. Rather, the receiver reconfigures itself by setting its filters to “bandwidths appropriate for the higher chip rate.” J.A. 426 (col. 8 ll. 31–32).

Intellectual Ventures argues the Board misconstrued the term “an indication of an operating bandwidth,” which appears in claim 1 of the ’353 patent and claim 6 of the ’079 patent. Those claims recite:

1. A method for operating bandwidth determination in a multi-bandwidth communication system, the method comprising:

at a remote unit:

receiving a signal having a first signal portion at a first, predetermined bandwidth, containing *an indication of an operating bandwidth* selected from a plurality of bandwidths used for a further signal portion;

recovering the indication from the first signal portion at the first, predetermined bandwidth; and

recovering information in the further signal portion at the operating bandwidth indicated by the indication.

J.A. 437 (col. 8 ll. 17–28) (disputed term emphasized).

6. A method performed by a wireless network, the method comprising:

transmitting, by the wireless network, a signal having a first signal portion at a first predetermined bandwidth and containing *an indication of an operating bandwidth* selected from a plurality of bandwidths used for a further signal portion; and

wherein the indication is recoverable from the first signal portion and information in the further signal portion is recoverable at the operating bandwidth indicated by the indication.

J.A. 427 (col. 9 ll. 13–23) (disputed term emphasized).

Intellectual Ventures also argues the Board misconstrued the term “reconfigurable filters.” The ’353 patent’s specification describes how the receiver configures itself to receive communications at both the lower and higher bandwidths by using one or more filters. J.A. 436 (col. 6 ll. 54–58). The specification also incorporates by reference the implementation of “different filters, or reconfiguration of the same filter(s).” *Id.* (col. 6 ll. 58–64). Several dependent claims state that the filters “are reconfigurable.” J.A. 437–438.

The Prior Art

The Board found the challenged claims obvious over three prior art references. Because Intellectual Ventures’ arguments on appeal do not depend on the scope or content of the prior art, we describe each reference only briefly here.

The McFarland reference, U.S. Patent No. 7,397,850, describes a multi-bandwidth wireless communication system using Orthogonal Frequency Division Multiplexing (“OFDM”). J.A. 1043. OFDM systems break wide bandwidth systems into smaller frequency sub-channels.

Trompower, U.S. Patent No. 5,950,124, describes an apparatus and process for improving the performance of cellular communication using certain systems parameters, such as chip rate. *See* J.A. 1096. Like the Intellectual Ventures patents, the chip rate in Trompower corresponds to the bandwidth. J.A. 2528, ¶ 51.

Pierzga, U.S. Patent Pub. No. 2001/0055320, teaches an improvement to an OFDM system. J.A. 7688. It describes an “adjustable” OFDM system that can “alter its data rate and bandwidth” to “account for a change in the number of services, or bandwidth required for each service.” J.A. 7723, ¶ [0076].

Board Proceedings

In 2014, the Board granted two IPR petitions from Ericsson Inc. and Telefonaktiebolaget LM Ericsson (together, “Ericsson”). The first petition challenged claims 6–10 and 28–32 of the ’079 patent as obvious over McFarland and Trompower (IPR2014-00915). The second petition challenged claims 1–8 and 21–27 of the ’353 patent as obvious over Pierzga and McFarland (IPR2014-00919). The Board also granted Google Inc.’s IPR petition challenging claims 9–20 and 29–34 of the ’353 patent as obvious over McFarland and Trompower (IPR2014-01031).

In their briefing before the Board, the parties disputed the construction of “an indication of an operating bandwidth.” Intellectual Ventures contended that the term means “identification of a particular operating bandwidth.” J.A. 4219. Google argued the plain and ordinary meaning should control. J.A. 7358; *see also* J.A. 7359 (“A POSITA would understand that the plain and ordinary meaning of ‘indication of an operating bandwidth’ encompasses determining the frequency range used to transmit the further signal portion based on the information provided by the indication.”). Ericsson argued that Intellectual Ventures’ definition was unduly

narrow and that no construction was needed because the '079 patent does not explain how bandwidth is computed from chip rate. J.A. 761–762.

On August 25, 2015, the Board held a combined oral argument for Ericsson's two petitions. It held a separate oral argument for Google's petition later that same day. In both arguments, the parties extensively discussed "an indication of an operating bandwidth." *See, e.g.*, J.A. 45–46, 49, 66. The Board characterized the exchange as "a vigorous dispute over the proper construction." J.A. 8. During the Google argument (held after the Ericsson argument), the Board asked whether it would be "sufficient for us to say that enough information is conveyed from the transmitter to the receiver so that the receiver can configure itself to receive that which is transmitted." J.A. 7541–7542. Google's counsel said yes. J.A. 7542. Intellectual Ventures' counsel disputed the Board's proposed construction but conceded that "there's no special requirement for the form of an indication of operating bandwidth." J.A. 7572. Intellectual Ventures' counsel further claimed that the indication could be an "arbitrary" number because "[t]he question is whether or not an operating bandwidth is actually identified, how that is done is not the issue; whether it's done is the issue." *Id.*

In its Final Written Decision, the Board construed "an indication of an operating bandwidth" to mean "that the first signal portion contains sufficient information so that when it is received, the receiver is able to configure itself to receive the data portion of the signal (or 'further signal portion' or 'transport channel') at approximately the same frequency range or bandwidth at which it will be transmitted by the transmitter." J.A. 21. In a footnote, the Board "express[ed] no opinion as to whether the receiver must be set to the exact same lower cut-off frequency and upper cut-off frequency as the transmitter." *Id.* n.15. "The key consideration," according to the Board, "is that

the receiver is able to receive the data that the transmitted transmits.” *Id.*

The Board also stated that the ’353 patent discloses two alternative embodiments, one with a single reconfigurable filter and one with two reconfigurable filters. J.A. 107–108. It found that “the claim language does not preclude the use of a single, common filter that can be used in the logic for recovering the first signal portion, as well as the logic for recovering the further signal portion.” J.A. 108. It thus determined that “McFarland discloses a reconfigurable filter within the meaning of claim 16.” *Id.*

Applying these constructions, the Board found that all challenged claims of Intellectual Ventures’ patents would have been obvious over various pairings of McFarland, Trompower, and Pierzga. J.A. 61, 132, 201.

Intellectual Ventures timely appeals, and we have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

Intellectual Ventures argues on appeal that the Board erred by (1) adopting a surprise construction that denied Intellectual Ventures due process; (2) misconstruing “an indication of an operating bandwidth”; and (3) misconstruing “reconfigurable filters.” We address each argument below.

Due Process

Intellectual Ventures argues that the Board denied it procedural due process by construing “an indication of an operating bandwidth” to mean something no party argued for or expected. Intellectual Ventures contends that neither Ericsson nor Google offered a construction of the term in their petitions for IPR and that the Board never “previewed” its construction until the Google oral argument. According to Intellectual Ventures, the Board’s

construction is completely untethered from the claim language or any proposed construction.

Intellectual Ventures cites two of our recent decisions in support: *In re Magnum Oil International, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) and *SAS Institute, Inc. v. ComplementSoft, LLC*, 825 F.3d 1341, 1351 (Fed. Cir. 2016). In *Magnum Oil*, we reversed the Board’s decision when the Board “adopt[ed] arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during an IPR.” 829 F.3d at 1381. Because the petitioner bears the burden of proving unpatentability, we held that “the Board must base its decision on arguments that were advanced by a party, and to which the opposing party was given a chance to respond.” *Id.* In *SAS*, we were concerned not that “the Board adopted a construction in its final written decision, as the Board is free to do, but that the Board ‘change[d] theories in midstream.’” 825 F.3d at 1351 (quoting *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1080 (Fed. Cir. 2015)). Intellectual Ventures argues that the Board acted contrary to our decisions in *Magnum Oil* and *SAS* by ignoring Intellectual Ventures’ proposed construction and adopting a construction in its Final Written Decision that no party previously advanced.

We disagree. Due process requires notice and an opportunity to be heard by an impartial decision-maker. *Abbott Labs. v. Cordis Corp.*, 710 F.3d 1318, 1328 (Fed. Cir. 2013). As formal administrative adjudications, IPRs are subject to the Administrative Procedure Act (“APA”). *SAS*, 825 F.3d at 1351. Under the APA, the Board must inform the parties of “the matters of fact and law asserted.” 5 U.S.C. § 554(b)(3). It also must give the parties an opportunity to submit facts and arguments for consideration. *Id.* § 554(c). Each party is entitled to present oral and documentary evidence in support of its case, as well as rebuttal evidence. *Id.* § 556(d). Pursuant to these provisions, the Board may not change theories midstream

without giving the parties reasonable notice of its change. *Belden*, 805 F.3d at 1080.

The record demonstrates that Intellectual Ventures had notice and an opportunity to be heard. The parties engaged in “a vigorous dispute over the proper construction” of “an indication of an operating bandwidth.” J.A. 8. Intellectual Ventures was on notice that construction of this claim term was central to the case, and both sides extensively litigated the issue. Intellectual Ventures and Google proposed constructions during briefing, while Ericsson argued that no construction was necessary. J.A. 762, 4219, 7359. Upon reviewing Google’s and Ericsson’s arguments, Intellectual Ventures could have requested leave to file a sur-reply. *Belden*, 805 F.3d at 1081. It did not do so. At the Ericsson oral argument, the Board questioned counsel for both Intellectual Ventures and Ericsson about the construction of “an indication of an operating bandwidth.” *See, e.g.*, Oral Arg. Tr. at 45–46, 49, 66.² At the Google oral argument later that day, the Board asked Intellectual Ventures and Google to respond to a proposed construction. J.A. 7541–7542, 7576. After the Board issued its Final Written Decision, Intellectual Ventures was entitled to seek rehearing. 37 C.F.R. § 42.71(d)(2). It did not.

Given the continuous focus on “an indication of an operating bandwidth” before and during oral arguments and Intellectual Ventures’ opportunity to seek a sur-reply or

² Though not included in the Joint Appendix, this citation refers to the August 25, 2015 consolidated oral argument in IPR2014-00915 and IPR2014-00919. We may judicially notice matters of public record for purposes of appeal. *See Biomedical Patent Mgmt. Corp. v. Cal. Dep’t of Health Servs.*, 505 F.3d 1328, 1331 n.1 (Fed. Cir. 2007).

rehearing, we find no due process violation. In *Magnum Oil*, the Board supplied completely new arguments that the petitioner never raised. 829 F.3d at 1381. Not so here, where the Board questioned counsel extensively over the construction of “an indication of an operating bandwidth” after receiving briefs that contested both whether and how the Board needed to construe the term. The Board is not constrained by the parties’ proposed constructions and is free to adopt its own construction, as it did here. See *SAS*, 825 F.3d at 1351.

To be clear, after the Board adopts a construction, it may not change theories without giving the parties an opportunity to respond. *Id.* No such change occurred here. Intellectual Ventures, Ericsson, and Google each submitted arguments as to whether and how to construe “an indication of operating bandwidth.” The Board questioned counsel about it at oral argument, asked for reaction to a hypothetical construction, and issued its construction in its Final Written Decision. This is not the situation in *SAS*, where the Board construed a claim term one way in its Institution Decision and, unexpectedly, a different way in its Final Written Decision. 825 F.3d at 1351. Because Intellectual Ventures had notice and an opportunity to be heard, *Abbott Labs.*, 710 F.3d at 1328, the Board did not violate Intellectual Ventures’ due process. We thus turn to the merits of Intellectual Ventures’ two claim construction arguments.

“An Indication of an Operating Bandwidth”

Claim construction relying on only intrinsic evidence, as here, is a legal determination we review *de novo*. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 840–42, (2015).

The Board construed “an indication of an operating bandwidth” to mean “that the first signal portion contains sufficient information so that when it is received, the receiver is able to configure itself to receive the data

portion of the signal (or ‘further signal portion’ or ‘transport channel’) at approximately the same frequency range or bandwidth at which it will be transmitted by the transmitter.” J.A. 21. The Board “express[ed] no opinion as to whether the receiver must be set to the exact same lower cut-off frequency and upper cut-off frequency as the transmitter.” J.A. 21 n.15. It said, “The key consideration is that the receiver is able to receive the data that the transmitted transmits.” *Id.*

On appeal, Intellectual Ventures agrees with the Board that “bandwidth” means “a frequency range.” It also agrees with the Board that “operating bandwidth” means “the frequency range or bandwidth that is used for the transport channel.” Thus, the real dispute is over the term “indication.” The Board’s example of a bandwidth included specific lower and upper cut-off frequencies. J.A. 17. Intellectual Ventures asserts that based on this example, “an indication of an operating bandwidth” must identify particular frequency limits. Thus, according to Intellectual Ventures, the Board erred by not adopting its proposed claim construction: “an identification of a particular bandwidth.” J.A. 699–701.

Intellectual Ventures also points to claim 12 of the ’079 patent, which depends from claim 11. Claim 12 recites that “the receiver configured to recover information in the further signal portion comprises a filter having a bandpass appropriate for the indicated operating bandwidth.” J.A. 427 (col. 9 ll. 44–51). According to Intellectual Ventures, “[a] selected bandpass range could only be ‘appropriate’ if the indicated operating bandwidth is identified with particularity.” Opening Br. 24.

The Board construes claims according their broadest reasonable interpretation consistent with the specification. *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016). We discern no error in the Board’s broad but reasonable construction. At oral argument, Intellectual

Ventures' counsel conceded that "there's no special requirement for the form of an indication," which could be an "arbitrary" number. J.A. 7572. This concession is in stark contrast with Intellectual Ventures' position on appeal. Moreover, the Board recognized that the transmitted data must be "at approximately the same frequency or range or bandwidth" for the receiver to work. J.A. 21. The '079 patent specification does not require greater specificity; it requires only an "appropriate" bandpass. J.A. 426 (col. 8 l. 66). The Board's construction comports with the specification by requiring the first signal portion to contain "sufficient information" to allow configuration. The lower and upper cut-off frequencies might not need to be "the exact same," J.A. 21 n.15, but they do need to be "approximately the same" for the patents to work. The Board's construction is reasonable in light of the specification.

"Reconfigurable Filters"

Dependent claim 3 of the '353 patent states, "the filter filtering the first signal portion and the filter filtering the further signal portion are reconfigurable." J.A. 437 (col. 8 ll. 37–39). Similarly, dependent claims 16 and 23 of the '353 patent state, "the filter having a bandpass appropriate for the first, predetermined bandwidth and the filter having a bandpass appropriate for the indicated operating bandwidth are reconfigurable." J.A. 438 (col. 9 ll. 27–30; col. 10 ll. 7–10). The Board determined that "the claim language does not preclude the use of a single, common filter that can be used in the logic for recovering the first signal portion, as well as the logic for recovering the further signal portion." J.A. 108.

We agree with the Board. The '353 patent specification anticipates that a user may use the same filter for two functions. J.A. 436 (col. 6 ll. 54–58) ("[I]t is necessary to provide different filters (or to differently configure the filter(s))."). The specification also incorporates by refer-

ence the implementation of “different filters, or re-configuration of the same filter(s)” in a preferred embodiment. *Id.* (col. 6 ll. 58–59). Intellectual Ventures’ proposed construction requiring two separate filters, therefore, would exclude the preferred embodiment of a single filter. A construction excluding a preferred embodiment “is rarely, if ever, correct.” *PPC Broadband, Inc. v. Corning Optical Commc’ns RF, LLC*, 815 F.3d 747, 755 (Fed. Cir. 2016). The Board acknowledged that the phrase “are reconfigurable” normally indicates a plurality of filters. But in light of the ’353 patent’s incorporation of a single-filter embodiment, we find the Board’s construction to be reasonable. *See id.* (“[E]ach and every claim” need not “be interpreted to cover each and every embodiment.”).

CONCLUSION

We have considered the remainder of Intellectual Ventures’ arguments and find them to be unpersuasive. The Board did not deny Intellectual Ventures procedural due process, and it correctly construed the disputed terms. We thus affirm the Board’s decision.

AFFIRMED

COSTS

No costs.