

NOTE: This disposition is nonprecedential.

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

CISCO SYSTEMS, INC.,
Appellant

v.

**XR COMMUNICATIONS, LLC, DBA VIVATO
TECHNOLOGIES,**
Appellee

2020-1105

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2018-
00762.

Decided: November 25, 2020

DAVID L. MCCOMBS, Haynes & Boone, LLP, Dallas, TX,
for appellant. Also represented by THEODORE M. FOSTER,
DEBRA JANECE MCCOMAS; ANGELA OLIVER, Washington,
DC.

KAYVAN B. NOROOZI, Noroozi PC, Los Angeles, CA, for
appellee.

Before MOORE, REYNA, and TARANTO, *Circuit Judges*.

MOORE, *Circuit Judge*.

Cisco Systems, Inc. appeals the Patent Trial and Appeal Board's final written decision holding Cisco had not proven that claims 1–9 and 12 of U.S. Patent No. 6,611,231 would have been obvious. For the reasons discussed below, we *affirm*.

BACKGROUND

The '231 patent relates to wireless communication systems and methods that utilize an adaptive antenna to transmit signals with selectively placed transmission peaks and nulls, potentially minimizing interference. '231 patent at 1:15–17, 2:3–8, 7:41–48. Claim 1 is representative and recites:

1. An apparatus for use in a wireless routing network, the apparatus comprising:

an adaptive antennas;

at least one transmitter operatively coupled to said adaptive antenna;

at least one receiver operatively coupled to said adaptive antenna;

control logic operatively coupled to said transmitter and configured to cause said at least one transmitter to output at least one transmission signal to said adaptive antenna to transmit corresponding outgoing multi-beam electromagnetic signals exhibiting a plurality of selectively placed transmission peaks and transmission nulls within a far field region of a coverage area based on routing information; and

search receiver logic operatively coupled to said control logic and said at least one receiver and configured to update said routing information *based at*

least in part on cross-correlated signal information that is received by said receiver using said adaptive antenna.

(emphasis added).

Cisco petitioned for *inter partes* review of claims 1–9 and 12 of the '231 patent. In its final written decision, the Board construed the term “cross-correlated signal information that is received by said receiver” as requiring “that the ‘signal information’ that is ‘received’ by the ‘adaptive antenna’ must be ‘cross-correlated’ at the time it is ‘received.’” J.A. 10, 20. Based on that construction, the Board found that Cisco’s prior art combination did not disclose the cross-correlation limitation of claim 1. The Board therefore held that Cisco had not proven that claims 1–9 and 12 of the '231 patent would have been unpatentable as obvious.

DISCUSSION

Cisco challenges the Board’s construction of “cross-correlated signal information that is received by” the claimed adaptive antenna. We review the Board’s ultimate claim construction *de novo* and any underlying factual determinations involving extrinsic evidence for substantial evidence. *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 902 (Fed. Cir. 2018). Because Cisco’s petition was filed before November 13, 2018, we give claims in the unexpired '231 patent their “broadest reasonable interpretation” consistent with the specification. *See Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016).

Cisco contends the Board erred in construing the phrase “cross-correlated signal information that is received by said receiver using said adaptive antenna” as requiring that the signal information be cross-correlated before the signal information is received. It argues the claim language is ambiguous and, as properly interpreted, includes signal information that is cross-correlated after it is received. We do not agree.

Claim 1 recites a receiver configured to update routing information “based at least in part on cross-correlated signal information that is received by said receiver using [an] adaptive antenna.” “Cross-correlated” is a past-participial adjective that modifies “signal information.” And the phrase “that is received by said receiver” is a relative clause modifying the claimed “cross-correlated signal information.” The plain language of the claim, therefore, unambiguously requires that the signal information is cross-correlated *at the time it is received*.

The language of independent claims 20 and 52 of the ’231 patent further supports our interpretation. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc) (“Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.”). Claims 20 and 52 recite an adaptive antenna configured to receive at least one electromagnetic signal and to “cross-correlate data sequences in said at least one received signal.” Unlike claim 1, claims 20 and 52 expressly contemplate cross-correlation *after* signal information is received. As the Board correctly held, the broadest reasonable interpretation of claim 1 requires that the “signal information” “received” by the “adaptive antenna” already be “cross-correlated” at the time it is received.

Cisco argues this interpretation excludes from claim 1 the only written description embodiment of the claimed search receiver logic, illustrated in Figure 22, where the signal information is cross-correlated *after* it is received.¹ As a preliminary matter, we note that there are many

¹ The parties dispute whether Figure 15 of the ’231 patent discloses a second embodiment wherein the adaptive antenna receives cross-correlated signal information. We do not resolve this dispute as it does not affect our decision here.

embodiments disclosed that do not require cross-correlation after signal receipt. Moreover, other claims, such as 20 and 52, expressly include the relevant portion of the embodiment disclosed in Figure 22, requiring cross-correlation after receipt. There is no requirement that “each and every claim ought to be interpreted to cover each and every embodiment.” *PPC Broadband, Inc. v. Corning Optical Commc’ns RF, LLC*, 815 F.3d 747, 755 (Fed. Cir. 2016). Regardless, nothing in the written description shows the patentee intended to deviate from the plain meaning of claim 1; there is no language in the written description suggesting that cross-correlating the signal information after it is received is important, essential, or necessary to the claimed invention. *See Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1373 (Fed. Cir. 2014) (“[T]o deviate from the plain and ordinary meaning of a claim term . . . the patentee must, with some language, indicate a clear intent to do so in the patent.”). In fact, the written description expressly states that “the invention defined in the [] claims is not necessarily limited to the specific features or steps described.” ’231 patent at 28:66–29:2. Likewise, of the more than one dozen “implementations” described, Cisco identifies only the embodiment of Figure 22 as disclosing signal information cross-correlated after it is received. *See, e.g., id.* at 9:22–46. Therefore, neither the embodiment of Figure 22 nor the written description persuades us to deviate from the plain, unambiguous language of claim 1. *See Lucent Techs., Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1215–16 (Fed. Cir. 2008) (“[W]here we conclude that the claim language is unambiguous, we have construed the claims to exclude all disclosed embodiments.”).

Cisco further contends dependent claim 2 makes clear that claim 1 must encompass “cross-correlated signal information” that is cross-correlated after it is received. We will not reach the merits of this argument, that claim 2 causes us to deviate from the plain meaning of claim 1, because Cisco never raised this argument with the Board.

Accordingly, we decline to consider Cisco's argument made in the first instance on appeal. *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 n.3 (Fed. Cir. 2015).

CONCLUSION

We have considered the parties' remaining arguments and do not find them persuasive. Because the Board did not err in its construction and because Cisco does not challenge the Board's decision under its construction, we affirm.

AFFIRMED