UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

ENTROPIC COMMUNICATIONS, LLC,
Patent Owner.

Case IPR2024-00442
Patent 9,825,826

PETITIONER'S REQUEST FOR REHEARING PURSUANT TO 37 C.F.R. §42.71(d)

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I. INTRODUCTION

Petitioner respectfully submits that the Board overlooked and/or misapprehended several issues in the Final Written Decision (Paper No. 30, hereinafter "FWD"). This request is timely filed within thirty (30) days of the Final Written Decision.

II. ARGUMENT

A. The Board's Finding Regarding Claims 6 and 15 Relied on Several Erroneous Claim Constructions

The Board found that Petitioner failed to show that claim 6 (and corresponding system claim 15) would have been obvious over the combination of Kamieniecki and Konstantinos (FWD, pp. 42-43), but Petitioner respectfully submits that this was based on misapprehending the claim language and overlooking Petitioner's arguments.

Claim 6 recites the following:

> 6. The method of claim 1, wherein said characteristic is signal power vs. frequency.

In its finding, the Board stated that "controlling transmission of network management messages to the headend based on 'channel absence/presence' or 'signal level estimates' is not equivalent to *reporting* 'signal power vs. frequency.'" FWD, p. 43 (emphasis added). This statement indicates the Board construed claim 6 to require transmitting the "signal power vs. frequency" characteristic back to the headend of claim 1.

This is contrary to the language of claim 1 and neither Petitioner nor Patent Owner advanced such a construction.[1] The relevant language of claim 1 recites:

> controlling the transmission of network management messages back to said headend based on said measured characteristic of said received signal, wherein said measured characteristic is different than said network management messages.

Ex. 1001, 7:51-55. In depending from claim 1, claim 6 merely prescribes that the "measured characteristic" be "signal power vs. frequency." The plain language of the claim does not require *transmitting* a signal power vs. frequency measurement to the headend. To the contrary, the claim language requires that "network management messages" are transmitted to the headend, and while control of the transmission of those messages is based on the "measured characteristic," the "network management messages" themselves are required to be different from the "measured characteristic." Pet., pp. 24-25, 39-40, 46-47; Petitioner's Reply, pp. 17-18. Petitioner's counsel also addressed this issue at the oral hearing, stating "… but Claim 6 does not require reporting signal power versus frequency. … Claim 6 only

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[1] Patent Owner's argument regarding this claim simply referred to the Institution Decision (Patent Owner's Response, p. 42), and was addressed in Petitioner's Reply (Petitioner's Reply, pp. 17-18 and fn. 1).

requires controlling the message transmission based on the signal power versus frequency. So that message is different than the signal power versus frequency."). Oral Hearing Transcript, May 15, 2025, 21:3-22. In short, there is no requirement in the claims to report "signal power vs. frequency" to the headend, only to control transmission of network management messages based on it. It was error to construe claim 6 as requiring the reporting of the signal power versus frequency characteristic to the headend.

Petitioner respectfully submits that the Board also erred in construing claim 6 to require a "graph, array or relationship with *multiple* pairs of power and frequency values, *not just a single* power-frequency data point." FWD, p. 43 ("Although 'channel absence/presence' may reflect whether signal level is 'outside of acceptable bounds' it is not per se 'signal power vs. frequency' *which implies a graph, array or relationship with multiple pairs of power and frequency values, not just a single power-frequency data point*.") (emphasis added). This was not a construction that the Board set forth in the Institution Decision (pp. 11, 34). Nor was it a construction proposed by Patent Owner (Patent Owner's Response, pp. 11-12, 42; Patent Owner's Sur-reply, pp. 19-20), so Petitioner has not previously had the opportunity to address it. Petitioner previously proposed that the term should be given its ordinary meaning (Pet., p. 24) and argued in the Petition that a single channel/frequency would meet the limitation. Pet., p. 46 ("A POSITA would have understood that each channel has

its own frequency, so the signal power of a particular channel would be a signal power for that channel's frequency ('signal power vs. frequency')."). Thus, Petitioner respectfully submits it has good cause to address the Board's construction here. *See Qualcomm Inc. v. Intel Corp.*, 6 F.4th 1256, 1263 (Fed. Cir. 2021).

The claim language and specification support that "signal power vs. frequency" does not require a graph, array or relationship with multiple pairs of power and frequency values.[2]

With regard to the claim language, claim 6 refers to "said characteristic" in the singular, with its antecedent basis in claim 1 being "a characteristic" also in the singular. Under Federal Circuit precedent use of the article "a" means one or more. *See, e.g., Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342-43 (Fed. Cir. 2008).

The specification of the '826 Patent includes only a single reference to "signal power [level] vs. frequency":

> The monitoring module 154 may be operable to analyze the band C_{J+1}, that it receives from the channelizer 102 to measure/determine characteristics such as, for example, *signal power level vs. frequency*, delay vs. frequency, phase shift vs. frequency, type and/or amount of

[2] Signal power versus frequency was not discussed in the prosecution history.

> modulation, code rate, interference levels, signal to noise ratio, a transfer function of the channel of over which the signal was received, an impulse response of the channel over which the signal was received, and/or any other characteristic that may help assess characteristics of the channel over which the signal was received, assess characteristics of the transmitter that sent the signal and/or any otherwise be pertinent to performance of the communication system.

Ex. 1001, 3:45-57 (emphasis added). The '826 specification does not describe "signal power vs. frequency" as being a graph, array, or multiple data points. *See, e.g., Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (specification is "the single best guide to the meaning of a disputed term"). Furthermore, this sole reference to "signal power vs. frequency" describes it in the context of analyzing a single "band C_{J+1}", which the '826 specification explains "may comprise any portion or portions" of the signal. Ex. 1001, 4:54-56. The specification further states that "the monitoring module 154 may concurrently process band C_{J+1}, to measure/determine characteristics of all or a portion of the signal S between f_{lo}, and f_{hi}." Ex. 1001, 4:61-64. In claim 1, the "measured characteristic" is determined by "analyzing said selected first portion of said digitized signal to measure a characteristic of said received signal." Ex. 1001, 7:48-50. Under its ordinary

meaning and in view of the specification, there is no indication that "said selected first portion of said digitized signal" must be analyzed across multiple frequencies.

As supported by the claim language and specification, "signal power vs. frequency" may be met through the measurement of the power level of a single frequency.

When applying its constructions to the references, the Board did not appear to dispute Petitioner's arguments that "Kamieniecki describes measuring the signal level ('signal power') of the channels it monitors," that "each channel has its own frequency," and that the "'channel presence/absence' that Kamieniecki reports to the headend is based on this measured characteristic (e.g., channel is absent if its signal power is too low), while also being different from that characteristic." FWD, pp. 42-43; Pet., pp. 46-47; Petitioner's Reply, pp. 17-18. Reporting the presence/absence of just a single channel, based on the signal power at that channel's frequency, would show sending a message that is based on, using the Board's term, a "single power-frequency data point."

Furthermore, even if the claim were construed to require the use of "multiple pairs" for the measured characteristic, the Board's conclusion overlooked Petitioner's argument that Kamieniecki monitors multiple channels, not just one – Petitioner's Reply summarized this by stating that "Kamieniecki describes tuning to each of its monitored channels (i.e., frequencies) and measuring the respective signal

level (i.e., signal power)" for reporting presence/absence of channels. Petitioner's Reply, p. 18 (emphasis added); *see also* Pet., pp. 46-47. Reporting the presence/absence of multiple channels would be based on, to use the Board's phrasing, "multiple pairs of power and frequency values."

Petitioner respectfully submits that the Board's findings regarding claims 6 and 15 misapprehended the claim language and overlooked Petitioner's arguments.

B. The Board's Finding Regarding Claims 8 and 17 Overlooked Konstantinos's Disclosure of Signal-to-Noise Ratio

Petitioner respectfully submits that the Board's analysis of Petitioner's arguments overlooked at least one of the alternatives recited in claim 8 (and corresponding system claim 17). FWD, p. 44. Claim 8 depends from claim 1, and recites various alternatives for the "characteristic" that is the basis for controlling transmission of the "network management messages" of claim 1:

> 8. The method of claim 1, wherein said characteristic is one of: signal-to-noise ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

Although controlling transmission of network management messages based on any <u>one</u> of these alternatives is sufficient to meet the claim, the Petition identified several characteristics taught by Kamieniecki and Konstantinos, to show that at least one of these claimed alternatives (and thus the claim) was obvious. Specifically, the Petition identified three characteristics measured in the prior art: Kamieniecki's

"error count," Konstantinos's "bit-error-rate," and Konstantinos's "signal-to-noise ratio." Pet., p. 49. The Petition also explained that in order to calculate signal-to-noise-ratio, the noise level of a signal needs to be measured. Pet., p. 49. The Petition argued that with these teachings, a POSITA would recognize reporting a channel's presence/absence based on several of the claim 8 alternatives, namely the "bit error rate," "noise levels," and "signal-to-noise ratio." Pet., pp. 49-50; Ex. 1002, ¶¶ 209-211.

In addressing these, the Board appeared to accept Petitioner's factual allegations that the cited references taught measuring "error count," "bit-error-rate," and "signal-to-noise ratio." FWD, p. 44. But the Board's application of these measurements from the prior art to the measured characteristics of the claims failed to address whether the signal-to-noise ratio measured by Konstantinos met the "signal-to-noise ratio" alternative in claim 8.

Particularly, while the Board did not dispute that Konstantinos disclosed measuring "signal-to-noise ratio," the Board only addressed Konstantinos's disclosure of "signal-to-noise ratio" with regard to the claimed "noise levels," and did not address whether Konstantinos's "signal-to-noise ratio" showed the claimed

"signal-to-noise ratio." FWD, p. 44 ("Konstantinos's 'signal-to-noise level' has not been shown to be equivalent to the claimed 'noise levels' though it may be related").[3]

As explained in the Petition and supported by Petitioner's expert[4], a POSITA would have understood that a channel's signal-to-noise ratio being outside acceptable bounds would be a basis for Kamieniecki reporting channel absence to the headend. Pet., pp. 49-50; Ex. 1002, ¶¶ 209-211.

Petitioner respectfully submits that the Board overlooked and failed to address that, as argued in the Petition, Konstaninos's signal-to-noise ratio implemented with Kamieniecki's channel presence/absence message show that claims 8 and 17 are obvious in view of the prior art.

C. The Board's Finding Regarding Renken Overlooked the Disclosure in the Renken Provisional that Problems Could Be Detected by the Cable Modem

With regard to Petitioner's Grounds E and F, the Board agreed with Patent Owner's arguments that Renken's measurement-capable cable modems (MCCM) only reported measurements for centralized "collection, evaluation, and storage" by

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[3] The FWD acknowledges Petitioner's argument that Konstantinos discloses "signal-to-noise ratio" at the top of page 44, but at the bottom of page 44 the FWD refers to this as "signal-to-noise level," which appears to be a typographical error.

[4] Neither Patent Owner nor its expert provided any argument on claims 8 or 17.

the central management controller (CMC), and that merely sending measurements would not meet the claimed "network management messages," since those are required to be "different than" the measured characteristics. FWD, p. 54. In doing so the Board stated:

> Alternatively, Petitioner asserts that the CMC's error reports or alarms "could just as easily be generated at the MCCM." Pet. 66; Ex. 1002 ¶ 280. *But there is nothing to suggest this in Renken or elsewhere*, and this would be contrary to Renken's centralized architecture where the CMC requests MCCMs to perform measurements and return them to the CMC for collection, evaluation, and storage.

FWD, p. 54 (emphasis added).

However, Petitioner respectfully submits that the Board's statement that there is nothing in Renken to suggest that error reports or alarms could be generated at the MCCM appears to have overlooked the disclosure of the Renken Provisional application (Ex. 1012) and several points that were argued by Petitioner and supported by its expert.[5]

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[5] As discussed in Petitioner's Reply, Patent Owner's expert never addressed these disclosures in the Renken Provisional. Petitioner's Reply, pp. 19-20.

First, in finding that Renken's architecture was centralized and that the MCCMs merely report their measurements, the Board does not address the fact that the Renken Provisional teaches the MCCM detecting problems. The Petition explained that "[t]he Renken Provisional also discloses that the MCCM could detect that there is a problem in a channel," and Petitioner's Reply noted that "[t]he Renken Provisional (incorporated by reference into the Renken Patent) states that the 'MCCM could detect that given the measurement results at its location, that a neighbor on the network without an MCCM might have a problem that needs to be investigated.'"). Pet., p. 66; Petitioner's Reply, p. 19; *see also* Petitioner's Reply, p. 20 ("Because the Renken MCCM has the ability to detect problems/errors, it would be obvious to a POSITA for the MCCM to use the error threshold to determine when an error has occurred, and send a corresponding alert."); Ex. 1002, ¶¶ 279-280; Ex. 1012, p. 15; Ex. 1034, p. 29.

Renken Provisional (Ex. 1012):

Some things enabled by this invention that do not exist in prior art:

1. An MCCM could detect that there is a problem with a non-DOCSIS channel within the customer premise. This problem could be addressed before the customer has a chance to complain about it.
2. Multiple MCCMs working together, as directed by the CMC, could detect that there is a problem with one or more non-DOCSIS channels in one part of the cable network. This would allow technicians to diagnose problems with network equipment outside a customer premise. The problem could be addressed before a customer complains about it.
3. An MCCM could use an upstream transmitter to transmit signals in the upstream frequency band to check frequency response of the upstream. Some other piece of network test equipment could reside at the headend and monitor these signals and determine if there problems in the upstream portion of the network.
4. An MCCM could detect that given the measurement results at its location, that a neighbor on the network without an MCCM might have a problem that needs to be investigated. This problem could be addressed before the customer complains about it.

The ability of Renken's MCCMs to detect problems such that they could be addressed before the customer complains demonstrates that Renken was not limited

to only centralized detection of problems, and this point was not addressed in the FWD.

Second, the Board does not address Petitioner's argument that even if the MCCM used its "error threshold" as a trigger for sending a problematic measurement, prompt correction of the detected problem would have rendered obvious at least "including some information with the measurement to indicate that this is not just an ordinary measurement report, but is rather indicative of a problem." Petitioner's Reply, p. 22. Petitioner argued that something as simple as "marking a measurement urgent" or a "message saying 'my neighbor might have a problem'" would qualify as a "network management message," as either would be different than the measurement and also sent based on the measurement. Petitioner's Reply, pp. 22 ("marking a measurement urgent"), 19 ("my neighbor might have a problem").

Petitioner submits that the Board overlooked, and did not address, these arguments when it concluded that Renken did not render obvious sending the "network management messages" recited in claims 1 and 10.

III. CONCLUSION

For at least the reasons above, Petitioner submits that the Board erred in the FWD, and respectfully requests reconsideration of these issues.

Dated: September 15, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §42.6(e)(4), the undersigned hereby certifies that the foregoing PETITIONER'S REQUEST FOR REHEARING PURSUANT TO 37 C.F.R. §42.71(d) was served electronically via e-mail on the following counsel of record for Patent Owner:

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