Trials@uspto.gov
571-272-7822

Paper 14
Date: October 4, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

ENTROPIC COMMUNICATIONS, LLC,
Patent Owner.

IPR2024-00439
Patent 11,399,206 B2

Before LYNNE H. BROWNE, MICHELLE N. WORMMEESTER, and FREDERICK C. LANEY, *Administrative Patent Judges*.

WORMMEESTER, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Comcast Cable Communications, LLC ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1–76 of U.S. Patent No. 11,399,206 B2 (Ex. 1101, "the '206 patent"). Entropic Communications, LLC ("Patent Owner") filed a Preliminary Response (Paper 10, "Prelim. Resp.").

We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). For the reasons that follow, we exercise our discretion to deny *inter partes* review under 35 U.S.C. § 314(a).

II. BACKGROUND

A. Related Proceedings

The parties identify various related matters. Pet. viii–ix; Paper 4, 1–4 (Patent Owner's Mandatory Notices). Petitioner also challenges claims 1–76 of the '206 patent in IPR2024-00438 (in which we grant institution) and IPR2024-00440 (in which we deny institution). Pet. viii; Paper 4, 4.

B. The '206 Patent

The '206 patent describes "wideband receiver systems that are capable of receiving multiple desired television channels that extend over multiple non-contiguous portions of the broad frequency spectrum and grouping them into a contiguous, or substantially-contiguous, frequency spectrum." Ex. 1101, 1:30–35. To illustrate one exemplary embodiment, Figure 2 of the '206 patent is reproduced below.

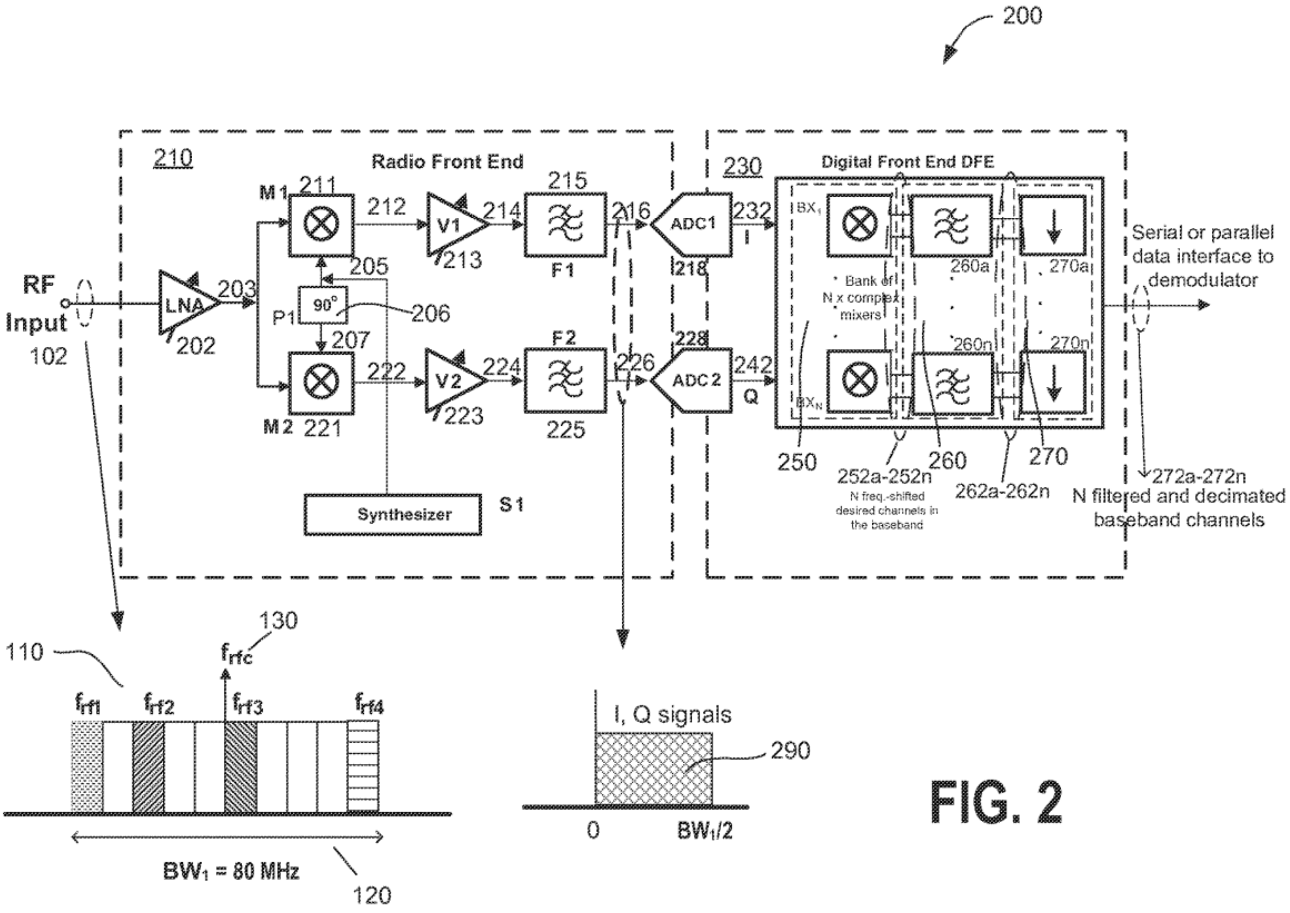


FIG. 2

Figure 2 is a block diagram of wideband receiver system 200 that includes radio front end 210, analog-to-digital convertors 218 (ADC1) and 228 (ADC2), and digital front end 230. *Id.* at 4:35–38, 5:33–35, Fig. 2. System 200 receives and processes channels 110, which are located in a radio frequency (RF) spectrum with frequency bandwidth 120 (BW1). *Id.* at 2:13–15, 4:39–42. There are ten available channels in bandwidth 120, where each channel occupies 8 MHz of bandwidth for a total of 80 MHz. *Id.* at 4:42–45. Of these available channels, there are four desired channels with respective carrier frequencies f_{rf1}, f_{rf2}, f_{rf3}, and f_{rf4} that are located in noncontiguous portions of bandwidth 120. *Id.* at 4:47–51.

Radio front end 210 is a wideband tuner receiver that includes low noise amplifier 202 (LNA), mixers 211 (M1) and 221 (M2), amplifiers 213

(V1) and 223 (V2), as well as filters 215 (F1) and 225 (F2). Ex. 1101, 4:39–5:32. Digital front end 230 includes N complex mixers 250, where N is the number of desired channels located in the noncontiguous portions of bandwidth 120. *Id.* at 5:51–55, Fig. 2. In Figure 2's example, N represents four desired RF channels. *Id.* at 5:63–65. Digital front end 230 also includes filter modules 260a–260n and demodulators 270a–270n. *Id.* at 6:6–12, Fig. 2.

In operation, radio front end 210's low noise amplifier 202 receives RF input signal 102, which includes the four desired RF channels. Ex. 1101, 4:45–51. Mixers 211 and 221 multiply (mix) amplified RF signal 203 with respective first oscillator frequency signal 205 and second oscillator frequency signal 207 to generate in-phase signal 212 and quadrature signal 222, which have a phase shift of ninety degrees between them. *Id.* at 4:61–66. Signals 212 and 222 are further amplified by respective amplifiers 213 and 223 to generate signals 214 and 224, which are then filtered by respective filters 215 and 225 to generate filtered in-phase signal 216 and filtered quadrature signal 226. *Id.* at 5:17–20, Fig. 2.

After being processed in radio front end 210, filtered signals 216 and 226 are digitized for further processing in digital front end 230. Ex. 1101, 5:20–24. ADC1 218 generates digital in-phase signal 232 (I), which is a digital representation of analog filtered signal 216, and ADC2 228 generates digital quadrature signal 242 (Q), which is a digital representation of analog filtered signal 226. *Id.* at 5:48–51.

In digital front end 230, each complex mixer 250 receives digital signals 232 and 242 from ADC1 218 and ADC2 228 to extract a different desired channel, and then frequency-shifts (downshifts) the extracted signal

to the baseband frequency. Ex. 1101, 6:3–6, 6:53–56. Frequency-shifted channels 252a–252n are filtered by associated filter modules 260a–260n. *Id.* at 6:6–8. Next, filtered channels 262a–262n are decimated and sent to associated demodulators 270a–270n that extract the original information transmitted in each desired channel. *Id.* at 6:8–14. The decimated baseband channels may be sent as a serial or parallel digital data stream to a demodulator using a serial or parallel data interface. *Id.* at 7:10–14, Fig. 2.

According to the '206 patent, its approach "eliminates the need of expensive data conversion, filtering and channel selection on the demodulator side," and "removes undesired channels from the signal path at an early stage, thus reliev[ing] the large dynamic range requirement in the demodulator." Ex. 1101, 7:14–19.

C. Illustrative Claim

Petitioner challenges claims 1–76 of the '206 patent. Claims 1, 13, 25, 38, 51, and 64 are independent. Claim 1 is illustrative.

1. A method for receiving a television (TV) signal comprising:

receiving an input signal from a cable network;

digitizing a contiguous band of frequencies in the input signal via a wideband analog-to-digital converter (ADC), wherein the contiguous band of frequencies comprises all received channels that exist in the input signal and the received channels comprise a plurality of desired channels and a plurality of undesired channels;

concurrently selecting each of the plurality of desired channels from the input signal without selecting any of the plurality of undesired channels; and

providing the plurality of desired channels via a serial interface.

D. Asserted Challenges to Patentability

Petitioner asserts the following seventeen challenges to claims 1–76 of the '206 patent. Pet. 16–17, 22–77.

Claim(s) Challenged	35 U.S.C. §	References/Basis
25, 26, 31, 35, 38–41, 43, 44, 48	103(a)[1]	Cholas,[2] Petrovic[3]
26, 39	103(a)	Cholas, Petrovic, Burris[4]
31, 43, 44	103(a)	Cholas, Petrovic, Maalej[5]
1, 2, 7–9, 11, 13–16, 18–21, 23, 32–34, 45–47	103(a)	Cholas, Petrovic, Rabaey[6]
27–30, 42	103(a)	Cholas, Petrovic, Takahiko[7]
30	103(a)	Cholas, Petrovic, Takahiko, Maalej
7, 8, 18–20, 32, 45	103(a)	Cholas, Petrovic, Rabaey, Maalej
36, 37, 49–52, 57, 61–67, 69, 70, 74–76	103(a)	Cholas, Petrovic, Lee[8]
52, 65	103(a)	Cholas, Petrovic, Lee, Burris
57, 69, 70	103(a)	Cholas, Petrovic, Lee, Maalej
10, 12, 22, 24, 58–60, 71–73	103(a)	Cholas, Petrovic, Lee, Rabaey

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '206 patent issued claims the benefit of priority to an application that was filed before this date, the pre-AIA version of § 103 applies.
[2] U.S. Publ'n No. 2010/0020794 A1 (published Jan. 28, 2010) (Ex. 1158).
[3] U.S. Publ'n No. 2009/0290659 A1 (published Nov. 26, 2009) (Ex. 1108).
[4] U.S. Publ'n No. 2007/0232088 A1 (published Oct. 4, 2007) (Ex. 1159).
[5] U.S. Patent No. 6,160,443, issued Dec. 12, 2000 (Ex. 1160).
[6] JAN M. RABAEY ET AL., DIGITAL INTEGRATED CIRCUITS: A DESIGN PERSPECTIVE (Charles G. Sodini, ed., 2d ed. 2003) (Ex. 1116).
[7] U.S. Publ'n No. 2006/0256216 A1 (published Nov. 16, 2006) (Ex. 1161).
[8] U.S. Publ'n No. 2008/0039036 A1 (published Feb. 14, 2008) (Ex. 1153).

Claim(s) Challenged	35 U.S.C. §	References/Basis
53–56, 68	103(a)	Cholas, Petrovic, Lee, Takahiko
56	103(a)	Cholas, Petrovic, Takahiko, Lee, Maalej
58, 71	103(a)	Cholas, Petrovic, Lee, Maalej, Rabaey
2, 14	103(a)	Cholas, Petrovic, Rabaey, Burris
3–6, 17	103(a)	Cholas, Petrovic, Rabaey, Takahiko
6	103(a)	Cholas, Petrovic, Rabaey, Takahiko, Maalej

In support of its challenges, Petitioner relies on a Declaration of David B. Lett (Ex. 1102).

III. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314(a)

Patent Owner argues that the Board should "exercise its discretion to deny institution of all three of [Petitioner's] parallel petitions challenging the '206 patent." Prelim. Resp. 4. Barring that, Patent Owner contends that the Board "should, at most, consider only one of the three." *Id.* For the reasons that follow, we agree with the latter of Patent Owner's arguments and therefore exercise our discretion to deny institution under 35 U.S.C. § 314(a).

As noted above, Petitioner filed three petitions challenging claims 1–76 of the '206 patent in IPR2024-00438, IPR2024-00439 (this proceeding), and IPR2024-00440. Pet. viii; Paper 4, 4. The Petition in this case is the second of the three petitions. Pet. viii. Consistent with the Board's guidance on handling parallel petitions, Petitioner filed a Petition Ranking and Explanation of Material Differences Between Petitions (Paper 3,

"Notice"). *See* PTAB Consolidated Trial Practice Guide, 59–60 (November 2019) (hereinafter, "CTPG" or "Practice Guide").[9] In the Notice, Petitioner ranks this Petition second, the petition in IPR2024-00438 first, and the petition in IPR2024-00440 third. Notice 1. In a separate decision in IPR2024-00438, we instituted *inter partes* review of claims 1–76 of the '206 patent based on all challenges raised in the petition. IPR2024-00438, Paper 13.

In support of its request that we consider all three petitions challenging the same claims, Petitioner makes two arguments. Notice 1–3. First, Petitioner argues that because "[c]ertain of the primary references relied on in the petitions qualify as prior art under 35 U.S.C. § 102(e), including claiming the benefit of provisional filings," it is "possible that the Patent Owner could attempt to antedate these references and/or remove them as prior art." *Id.* at 1. Second, Petitioner argues that "[e]ach of the primary references describes receivers that are strikingly similar to the receiver disclosed in the '866 Patent,[10] yet each reference has different strengths with respect to various different claims." *Id.* at 2. We find these arguments unpersuasive.

Our Practice Guide provides guidance on handling situations involving multiple petitions by a single petitioner challenging the same patent claims:

> Based on the Board's experience, *one petition should be sufficient* to challenge the claims of a patent in most situations. . . . In addition, *multiple petitions by a petitioner are*

[9] Available at https://www.uspto.gov/TrialPracticeGuideConsolidated.
[10] Petitioner refers to "the '866 Patent," which is not involved in the three petitions. We believe Petitioner intended to refer instead to the '206 patent.

> *not necessary in the vast majority of cases*. To date, a substantial majority of patents have been challenged with a single petition.

CTPG 59 (emphases added). The Practice Guide provides examples of "circumstances in which more than one petition may be necessary." *Id.* None of these examples are pertinent here. For instance, a second petition might be justified "when the patent owner has asserted a large number of claims in litigation or when there is a dispute about priority date requiring arguments under multiple prior art references." *Id.* Petitioner does not argue that the number of claims in the parallel litigation is "large." Additionally, while Petitioner does argue that the prior art relied on might be antedated, Patent Owner responds by "stipulat[ing] that if the Board were to institute only [Petitioner's] second ranked petition (IPR2024-00439), and deny IPR2024-00438 and IPR2024-[0]0440 as improper parallel petitions, then, in the IPR2024-00439 proceeding, Patent Owner will not challenge the status of Petrovic and Cholas as prior art."[11] Prelim. Resp. 41.

Petitioner's remaining argument is no more persuasive. Responding to Petitioner's argument that different prior art has different strengths with respect to different claims, Patent Owner points out that Petitioner "fails to show why any difference between the primary references would justify instituting more than one petition." Prelim. Resp. 43. We agree. As our Practice Guide cautions, "[t]wo or more petitions filed against the same patent at or about the same time . . . may place a substantial and unnecessary burden on the Board and the patent owner and could raise fairness, timing,

[11] The second petition is the only concurrently filed petition relying on references that Patent Owner could potentially swear behind. *See* Prelim. Resp. 39–40; *see also* Notice 1–2 (identifying Petrovic and Cholas as "102(e) prior art").

and efficiency concerns." CTPG 59. This is especially concerning here, where the instituted trial in IPR2024-00438 will involve four references and eight challenges to patentability. Adding an additional seventeen grounds and seven references from this Petition to the mix would create an "unnecessary burden."

In sum, in the words of our Practice Guide, Petitioner fails to show "why the Board should exercise its discretion to institute additional petitions if it identifies one petition that satisfies petitioner's burden under 35 U.S.C. § 314(a)." *See* CTPG 60. Accordingly, we exercise our discretion to deny institution in this proceeding based on Petitioner's parallel petition in IPR2024-00438.

IV. CONCLUSION

For the foregoing reasons, we are not persuaded that the facts presented by Petitioner justify a second petition challenging the same claims of the '206 patent as the petition in IPR2024-00438 (in which we grant institution). We therefore exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review.

V. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), the Petition is denied as to all challenged claims of the '206 patent, and no trial is instituted in this case.

PETITIONER:

Frederic Meeker
Michael Cuviello
Harry Porter
Paul Qualey
Joshua Davenport
BANNER & WITCOFF, LTD.
fmeeker@bannerwitcoff.com
mcuviello@bannerwitcoff.com
wporter@bannerwitcoff.com
pqualey@bannerwitcoff.com
jdavenport@bannerwitcoff.com

PATENT OWNER:

Jason Engel
Erik Halverson
Kyle Kantarek
Nolan Hubbard
K&L GATES LLP
jason.engel.ptab@klgates.com
erik.halverson@klgates.com
kyle.kantarek@kirkland.com
nolan.hubbard@klgates.com

Kenneth Weatherwax
Parham Hendifar
Nathan Lowenstein
LOWENSTEIN & WEATHERWAX LLP
weatherwax@lowensteinweatherwax.com
hendifar@lowensteinweatherwax.com
lowenstein@lowensteinweatherwax.com