

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUALCOMM INCORPORATED,
Petitioner,

v.

COBBLESTONE WIRELESS, LLC,
Patent Owner.

Case IPR2024-01336
U.S. Patent No. 7,924,802 B2

PATENT OWNER'S SUR-REPLY

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Patent Owner's Exhibit List for IPR2023-01281

Pursuant to 37 C.F.R. § 42.63(e), Patent Owner Cobblestone Wireless, LLC hereby submits its exhibit list associated with the above-captioned *inter partes* review of U.S. Patent No. 7,924,802.

Exhibit No.	Description
Ex. 2001	<i>Samsung Elecs. Am, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00606, Institution Decision, Paper 13 (PTAB Sept. 10, 2024)
Ex. 2002	<i>Cellco P'ship d/b/a Verizon Wireless et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00946, Petition, Paper 1 (PTAB June 28, 2024)
Ex. 2003	<i>Hewlett Packard Enter. Co. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00707, Institution Decision, Paper 17 (PTAB Sept. 24, 2024)
Ex. 2004	<i>Cellco P'ship d/b/a Verizon Wireless et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00946, Termination Decision, Paper 12 (PTAB Nov. 15, 2024)
Ex. 2005	<i>Samsung Elecs. Am, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00606, Motion to Terminate, Paper 19 (PTAB Nov. 1, 2024)
Ex. 2006	Email correspondence between PTAB and counsel regarding conference call addressing Petitioner's motion for joinder in this IPR, dated November 13-18, 2024
Ex. 2007	<i>Samsung Elecs. Am, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00606, Scheduling Order, Paper 14 (PTAB Sept. 12, 2024)
Ex. 2008	<i>Hewlett Packard Enter. Co. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00707, Patent Owner Preliminary Response, Paper 7 (PTAB June 27, 2024)

Ex. 2009	<i>Samsung Elecs. Am, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00606, Petition, Paper 3 (PTAB Feb. 26, 2024)
Ex. 2010	<i>Hewlett Packard Enter. Co. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00707, Petition, Paper 3 (PTAB Mar. 19, 2024)
Ex. 2011	<i>Samsung Elecs. Am, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00606, Patent Owner Preliminary Response, Paper 8 (PTAB June 14, 2024)
Ex. 2012	<i>Samsung Elecs. Am, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00606, Termination Order, Paper 20 (PTAB Jan. 2, 2025)
2013	Declaration of Dr. Todor v. Cooklev
2014	Curriculum Vitae of Dr. Cooklev

I. Introduction

Pursuant to 37 C.F.R. § 42.23(b), Patent Owner Cobblestone Wireless, LLC (“Patent Owner”) respectfully submits this Sur-Reply to address new arguments and theories raised for the first time in Petitioner Qualcomm’s Reply (Paper 34). The Reply introduces new arguments, new prior-art citations, and new motivations to combine that were not presented in the Petition. These new theories exceed the permissible scope of a reply and should be disregarded.

Even if considered, the Reply confirms that the Petition was incomplete and that Petitioner has not met its burden to prove unpatentability by a preponderance of the evidence. As shown in Patent Owner’s Response (Paper 22, “POR”) and Dr. Cooklev’s declaration (Ex. 2013), the asserted references neither disclose nor render obvious the claimed “information,” the claimed digital-signal architecture, or the specific frequency relationships required by the challenged claims.

By repeatedly reframing the purpose and structure of the cited art, Petitioner effectively concedes that the Petition’s original rationale was incomplete. Here, the new explanations, mappings, and motivations to combine only highlight that the Petition lacked a coherent unpatentability case at the outset.

II. The Reply Confirms Petitioner’s Failure to Prove Unpatentability

A. The Reply Confirms that the Art Fails to Disclose Transmitting “Information” as Required by Claim 1 (Grounds 1, 2, and 6)

Claim 1 requires a method transmitting “information” comprising the steps of “transmitting first information...” and “simultaneously transmitting second information.” As explained in the POR, claim 1 makes clear that the “first information” and “second information” are part of the “information” that appears in the preamble and further that the information is transmitted in an organized way, involving a first and second part that is transmitted simultaneously from the same transmitter. POR, 2; Ex. 2013, ¶7. The preamble’s “information” provides the antecedent basis for “first information” and “second information,” establishing that both are parts of a unified whole transmitted together. Ex. 2013, ¶37. Petitioner’s Reply and its corresponding expert declaration, however, fail to respond to, let alone rebut, this evidence.

Petitioner now asserts that “information” simply means “data” and that no relationship between first and second information is required (Reply, 3–5; Ex. 1030, ¶10). In so arguing, however, Petitioner ignores the plain language of the claim and contradicts the intrinsic record.

The Reply wrongly contends that the Patent Owner “relies on merely two embodiments in the Specification” to support its position. Reply, 3. In addition to the plain language of the claim discussed above, Patent Owner and its expert pointed to four embodiments in the specification that establish the relationship between the first and second information. Ex. 2013, ¶38. Petitioner points to a single embodiment

to support its construction, but omits the first half of the discussion. Reply, 4 (quoting Ex. 1001 at 6:7-9). While the patent states that “data of the first digital signal and the data of the second digital signal may be unrelated data streams,” it first explains that “the original information data may be passed through an encoder and the output of the encoder would be split into two streams providing the inputs 251 and 252 [first digital data and second digital data].” Ex. 1001 at 6:1-7.

Moreover, contrary to the Reply’s argument, Patent Owner’s arguments do not render the dependent claims superfluous (Reply, 4). Claims 6 and 9 (identified in the Reply) further limit the specific type of information that is transmitted. These claims reinforce Patent Owner’s interpretation of the relationship between the first and second information; they are not rendered superfluous by it. Petitioner thus fails to address, let alone rebut, the evidence and argument presented in the Patent Owner Response and accompanying expert declaration regarding “information.”

In focusing solely on arguments under its improper claim construction, Petitioner tacitly admits that the identified prior art and Grounds do not disclose first and second “information” that are related to one another and are part of the information recited in the preamble. *See* Reply, 5, 6, 18. As demonstrated in Patent Owner’s Response and Dr. Cooklev’s accompanying declaration, Petitioner failed to meet its burden as to Claim 1 or Claims 2-4 or 6-9 which depend therefrom.

B. The Reply Fails to Cure the Deficiencies in the Suzuki Grounds (2-5)

As explained in the POR, Suzuki, which Petitioner relies in for Grounds 2-5, does not disclose multiple limitations required by claims 10 and 17 and the claims that depend therefrom. POR, 7-30. The Petition presented “two alternative theories,” relying either on Suzuki’s embodiments in Figure 6 or Figure 8 (Pet., 31), but neither anticipates nor renders obvious the challenged claims.

1. Petitioner’s Suzuki Figure 6 Theory

With respect to the Figure 6 theory presented in the Petition, the Reply obfuscates Patent Owner’s Response while ignoring the plain language of the claims. The Reply contends that Patent Owner “seems to import a requirement that the claims ‘be transmitted *by the transmitter*’ [but] neither claim 10 nor 17 requires a ‘transmitter’ structure.” Reply, 8 (emphasis in original).¹ But Patent Owner is not importing limitations into the claims, but rather simply reading their plain language, which requires a first and second “digital signal comprising [first/second] data *to be transmitted*.” Ex. 1001, Cls. 10, 17. Notably, the Petition agreed with this reading of the plain language, contending that the “predistortion compensation data *will be transmitted* with their respective frequency band as a predistorted signal.” Pet., 31. Only after Patent Owner explained that the identified predistortion signals are

¹ All emphases are added unless otherwise noted.

canceled before transmission did Petitioner argue that transmission is unnecessary Reply, 7-8.

Petitioner new argument—that the predistortion compensation data “become[s] part of the output signal” and are thus transmitted (Reply, 9)—is both procedurally improper and substantively inaccurate. A reply “may not present new arguments or evidence that could have been included in the petition.” *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016). Moreover, Petitioner’s new argument is contrary to Suzuki’s teaching, which expressly states that “[t]he distortion compensation data are such one for canceling the detected distortion components.” Ex. 1004, ¶0046. The predistortion compensation data are cancelled in the amplifier 28 prior to any transmission. POR, 8-11 (citing Ex. 2013, ¶¶50-56.). Thus, Petitioner’s improper new argument is untenable in light of Suzuki’s own teachings.

2. Petitioner’s Suzuki Figure 8 Theory

With respect to the Figure 8 theory presented in the Petition, Petitioner tacitly acknowledges the presented Grounds were insufficient, adding new citations to Suzuki in Reply. Claim 10 recites “up-converting the first analog signal to a first RF center frequency to produce a *first* up-converted analog signal.” Ex. 1001, cl. 10. Claim 10 then recites “up-converting the second analog signal to a first RF center frequency to produce a *second* up-converted analog signal.” *Id.* Claim 17 recites

similar limitations. *Id.* at cl. 17. As explained in Patent Owner's Response, these claims this require two distinct up-converted analog signals. POR 11-15. The Petition relies on the output of the Digital-to-Analog Converters (DAC) 24-1 and 24-2 as the two claimed analog signals to be subsequently up-converted. Pet., 35. The Reply does not dispute this.

As explained in the POR, the outputs of DAC 24-1 and 24-2 are not separately up-converted to produce a "first" and a "second" up-converted signal. POR, 12-15; Ex. 2013, ¶60. Instead, they are combined in Vector Modulator 25 to produce a single combined signal. POR, 12-13; Ex. 2013, ¶60; Ex, 1004 [Suzuki] [0058], [0069]. Petitioner does not dispute this reading of Suzuki or that the sections of Suzuki cited in the Petition fail to disclose this limitation.

The Patent Owner Response demonstrated that Suzuki Figure 8 further did not render the claims unpatentable because it failed to disclose the two distinct up-converted frequency ranges with specific properties required by Claims 10 and 17. POR, 15-18. The Petitioner argued that the output of Suzuki's Figure 8 predistorter contained two separate frequency ranges when considered in combination with Figure 13A, a graph showing a signal with two different frequency bands. Pet., 40. Patent Owner's Response identified the deficiencies in this argument, namely that Suzuki states that Figure 8's output signal contains a single frequency band and not two frequency bands. POR 16. Petitioner now points to a new statement in Suzuki

that “it is also possible to arrange such that the power amplifier output monitor signal SM is divided by a divider 20 to the frequency band controller 8 as shown by a broken line in **FIG. 8** and frequency bands of signals in the frequency bands **FB1** and **FB2** are detected from the monitor signal SM.” Reply, 9-10 (citing Ex. 1004, ¶[0094]) (emphasis in original). This cross-embodiment theory was not in the Petition and is improper new matter.

Moreover, dividing the output monitor signal SM by divider 20 to the frequency controller band 8 does not cure the Petition’s deficiencies. Petitioner relies on DAC 24-1 and DAC 24-2 as the first and second up-converted signals. It is those up-converted signals that must have the specified frequency ranges. Splitting the power amplifier output monitor signal SM, which occurs after the up-conversion, does not result in a first and second upconverted signal with the claimed frequency ranges. Suzuki fails to disclose the required digital signals and frequency ranges, and thus cannot render Claims 10, 13, 14, 17, or 21–25.

3. Suzuki-Chen Does Not Render Obvious Claim 24

Claim 24 requires two down-converters outputting respective down-converted signals, with a filter that “receives the first and second down-converted signals.” Ex. 1001, cl. 24. Petitioner relies on Chen’s down-converters 306 and 310 as the claimed first and second down-converters, and on Chen’s filter 328c as the claimed filter. Pet., 70-71. Petitioner now abandons its argument that Chen’s down-

converter outputs are “provided directly” to filter 328c (Pet., 71) and instead focuses on whether the signals are analog or digital (Reply, 10–12). That reframing misses the point: the problem is that **Chen’s filter does not receive the down-converter outputs**. As the POR and Dr. Cooklev’s testimony show, the analog outputs of Chen’s down-converters 306 and 310 are first converted at A/D converter 322; only the **modified digital signals** are then provided to filter 328c. POR at 23; Ex. 2013 ¶¶90. Petitioner does not dispute this data path, and thus fails to satisfy the “filter receives” limitation.

The Reply jettisons the argument made in the Petition (that the down-converted signals in Chen are “directly” provided to the filter) and instead rebuts a strawman argument as to whether Claim 24 is limited to analog or digital signals and whether conversion from analog to digital signals is required. Reply, 10-12. The deficiency in Chen is not that the down-converted signals are analog, but rather that Chen’s filter never receives the output of the identified down-converters.

Petitioner does not dispute that the output of the down-converters is sent to the Analog to Digital Converter 322. Reply, 10-12. Petitioner likewise does not dispute that the outputs of the down-converters are modified and converted to digital signals. *Id.* Petitioner likewise does not dispute that the digital signals sent from analog to digital converter 322 are different from the analog signals sent from the down-converters. *Id.* The deficiency in Chen is not due to whether the down-

converted signals are analog or digital, but rather that the down-converted signals are **not received by the filter**. Notably, the Reply offers no rebuttal on this point.

4. Suzuki-Chen Does Not Render Obvious Claim 25

The Petition devoted a single sentence to claim 25: “For claim 25, *see* Ground 2, claim 2.” Pet., 57. The Reply repeats this throw-away line arguing, “the analysis for Claim 25 would be the same as for Ground 2, Claim 2, by virtue of the claims’ identical language.” Reply, 13. But while claims 2 and 25 contain similar language, they are not identical. In particular, claim 2 is directed to the first and second “*center* frequency.” Claim 25 is directed to the first and second “*RF* frequency.” The Petition and the Reply make no effort to bridge the gap between the two.

Moreover, claims 2 and 25, when considered as a whole, including the limitations present in their respective independent claims, are quite different. The Petition fails to consider or address the obviousness of claim 25 *as a whole*, instead merely addressing the disclosure of the additional limitation present in claim 25. The Petition is thus facially deficient as to claim 25. *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1275 (Fed. Cir. 2004). “The ‘as a whole’ instruction in title 35 prevents evaluation of the invention part by part. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result—often the very definition of invention.” *See also Princeton Biochemicals*,

Inc. v. Coulter, Inc., 411 F.3d 1332, 1337 (Fed. Cir. 2005) (“[S]imply identifying all of the elements in a claim in the prior art does not render a claim obvious.”).

A. The Reply Fails to Cure the Deficiencies in the Fernandez-Montojo Grounds (6-9)

The Petition failed to make an adequate showing as to the alleged invalidating disclosures in the cited art and further as to the requisite motivations to combine. The Reply now seeks to backfill those deficiencies, improperly adding new evidence and argument. But even when considered, the new arguments regarding Grounds 6-9 do not render the challenged claims unpatentable.

1. The Petition Failed to Identify “A Baseband Digital System” that Provides a First and Second Baseband Signal (Claims 17 and 21-23)

Claim 17 (and claims 21 and 23 that depend therefrom) requires “[a] wireless communication system comprising: a baseband digital system for providing a first digital signal comprising a first data to be transmitted and a second digital signal comprising a second data to be transmitted.” Ex. 1001, cl. 17. Thus, the “baseband digital system” provides both the first and second digital signals to be transmitted. POR, 31-32; Ex. 2013, ¶108. The Reply does not dispute this.

The Petition’s entire showing was a single chart cell:

Claim Limitation	Corresponding Claim Limitation(s)
17a	10a. Fernandez further discloses a baseband digital system . Ex. 1005, ¶6 (“upconvert[] baseband signal[s]”), ¶11 (“general method is provided to increase a digitally synthesized signal's bandwidth by frequency interleaving multiple (i.e., at least 2) digitally synthesized signal sources of narrower bandwidth ”).

Pet., 98. Petitioner’s accompanying expert declaration provides no additional evidence or argument. Ex. 1003, ¶280 (“It is also my opinion that Fernandez further discloses a **baseband digital system**. Ex. 1005, ¶6 (“upconvert[] baseband signal[s]”), ¶11 (“a general method is provided to increase a digitally synthesized signal's bandwidth by frequency interleaving **multiple (i.e., at least 2) digitally synthesized signal sources of narrower bandwidth**”)).

The Reply now expands that single chart cell into **five pages** of new evidence and argument, pointing to new figures and elements. Reply, 19-23. The cited disclosures and corresponding arguments were not included in the Petition and should not be considered in Reply. *Intelligent Bio-Systems*, 821 F.3d at 1369 (Fed. Cir. 2016). The additional argument and explanation provided in Reply only serves to underscore the deficiency in the Petition.

The Reply newly argues that “[t]he baseband signal is depicted in Fernandez as the output of Figure 1, element 17” and further that output 17 “corresponds to similarly numbered elements found in other Figures in Fernandez” (additionally

relying on outputs 17A and 17B in Figure 2A). Reply, 20. The Reply then incorporates yet another Figure in Fernandez, pointing to Figure 7, arguing that the outputs 17A and 17B in Figure 7 are baseband signals that are digitally synthesized for frequency interleaving.

The new arguments make an unsupported leap from the baseband signal $x_c(t)$ (item 17 in Figure 1) to outputs 17A and 17B in Figures 2A and 7. The Reply does not explain or support this leap, providing no support for this alleged correspondence. The Reply's reliance on Dr. Almeroth's conclusory supplemental opinions (Ex. 1030, ¶¶24–28) adds no substantive analysis and cannot constitute substantial evidence. *TQ Delta LLC v. Cisco Sys.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019). By contrast, Patent Owner's expert Dr. Cooklev (Ex. 2013) provides detailed technical explanations demonstrating why Fernandez does not disclose the claimed limitations (as well as Rick and Suzuki). The Board should not credit Dr. Almeroth's conclusory supplemental declaration that is little more than a copy-and-paste from the Reply.

While outputs 17A and 17B are combined by summing circuit 21 in Figure 2A, the Reply points to no support for its assumption that 17A and 17B are “output (baseband signals)” or that those signals correspond to item 17 in Figure 1. In addition, Fernandez interleaves multiple narrowband signals to form a single

wideband output (Ex. 1005 ¶¶[0005]– [0007], [0045]; Figs. 2–5). Its architecture merges, not separates, signals. Dr. Cooklev confirmed it does not provide separate digital signals each comprising transmitted information (Ex. 2013 ¶112).

The Reply further takes issue with Patent Owner’s argument that the Petition improperly cherry-picks from Fernandez’s embodiments (Reply, 22-23), including embodiments contained solely in the background of the art discussion versus those discussing Fernandez’s “present invention.” As explained in the POR, the Petition failed to demonstrate why Fernandez’s teachings regarding its “present” invention apply to the prior art it claimed to improve upon. POR, 34.

2. The Reply Emphasizes the Lack of Motivation to Combine in the Petition

The Reply offers new rationales for combining Fernandez with Montojo and Fernando, Montojo with Chen, including improved predistortion, reduced circuit complexities, and noise reduction, that were absent from the Petition. Reply, 13-18, 23-25. Such new rationales are improper and unsupported. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“Conclusory statements and unsupported assertions do not establish motivation to combine.”). *See also Intelligent Bio-Systems*, 821 F.3d at 1369.

The Reply newly argues that “Montojo simplifies the multi-carrier system in Fernandez by providing a single line that feeds the signals into a standard amplifier

and antenna. Such a solution is straightforward, off-the-shelf technology.” Reply, 16. But Petitioner offers no support for these allegations, beyond the conclusory duplicative statements copied over in Dr. Almeroth’s supplemental declaration. *Id.* Petitioner does not explain how such revised circuit would perform the frequency interleaving it relies upon for claims 24 and 25, or the other multiple claims it cites this combination against. Likewise, Petitioner has presented no evidence that the Fernandez or Montojo circuits were available or support for the contention that this alteration would reduce circuit complexity, function as a straightforward substitution, or be composed solely of off-the-shelf readily available components.

Dr. Almeroth’s supplemental testimony (Ex. 1030, ¶¶18-23) does not cure these deficiencies. Instead, it contradicts his earlier opinions (Ex. 1003, ¶¶111, 119, 124-126), in which he described each reference as a self-contained transmitter performing conventional processing within a single chain. His new opinions are post-hoc rationalizations unsupported by the references themselves. As Dr. Cooklev explained, none of these alleged benefits would have been apparent or achievable without fundamentally redesigning the cited circuits (Ex. 2013, ¶¶128-130).

III. Conclusion

Petitioner’s Reply introduces new arguments, new prior art disclosures, and new motivations to combine—all improper at the reply stage. Even if considered,

these arguments fail to demonstrate that the asserted references disclose or render obvious the challenged claims.

For these reasons and each of the reasons set forth above and in Patent Owner's Response, all challenged claims should be found not unpatentable.

Date: October 17, 2025

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24, Patent Owner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this **PATENT OWNER'S SUR-REPLY**, that the amount of words in this paper is 3,181. Pursuant to 37 C.F.R. § 42.24, this word count is in compliance with the word limit set forth in 37 C.F.R. § 42.24(c)(4) excluding the portions exempted under 37 C.F.R. § 42.24(a)(1).

Date: October 17, 2025

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on October 17, 2025, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioners:

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