

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE (USA) Inc.,
Petitioner

v.

WSOU INVESTMENTS, LLC D/B/A BRAZOS LICENSING AND
DEVELOPMENT
Patent Owner

Case IPR2023-00500
U.S. Patent No. 7,477,876

PATENT OWNER'S PRELIMINARY RESPONSE TO THE PETITION

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I. INTRODUCTION

WSOU Investments, LLC d/b/a/ Brazos Licensing and Development (the “Patent Owner” or “WSOU”) submits this Preliminary Response to the Petition for *Inter Partes* Review (“Pet.” or “Petition”) of United States Patent No. 7,477,876 (“the ’876 Patent” or “Ex. 1001”) filed by ZTE (USA) Inc. (“Petitioner”). In view of the reasons presented herein, the Petition should be denied in its entirety as failing to meet the threshold burden of proving there is a reasonable likelihood that at least one challenged claim is unpatentable.

II. RELATED PROCEEDINGS

The ’876 patent is involved in the following proceedings: (1) *WSOU Investments, LLC v. ZTE Corporation et al.*, 6:22-cv-00138 (Feb. 8, 2022 W.D. Tex.); and (2) *WSOU Investments, LLC v. Oneplus Technology (Shenzhen) Co., Ltd.*, 6:20-cv-00956 (Oct. 14, 2020 W.D. Tex.).

III. LEVEL OF ORDINARY SKILL IN THE ART

The Petition proposes a person of ordinary skill in the art at the time of the ’876 patent (a “POSITA”) “would have at least a bachelor’s degree in Electrical Engineering, Computer Science, Computer Engineering, or equivalent, and at least two years of prior experience in the wireless communication industry or comparable industry experience.” Pet. 4 (citing Ex. 1003, 30). Patent Owner does not offer a competing definition at this stage because Petitioner has not met its burden to prove unpatentability of any challenged claim even if it were appropriate to apply Petitioner’s proposed definition for a POSITA.

IV. CLAIM CONSTRUCTION

The standard for claim construction applicable here is the “ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. §42.100(b) (effective November 13, 2018); 83 Fed. Reg. No. 197, 51340 (Oct. 11, 2018). This is the same standard applied by Article III courts. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). The proper standard primarily focuses on intrinsic evidence, such as the patent specification and prosecution history, to interpret the claim terms. *Id.* at 1317; *see also* 37 C.F.R. § 42.100(b).

The Petition states that “[f]or the purposes of this IPR, the plain meaning of each claim term can be applied.” Pet. 5. Nevertheless, the Petition tacitly applies undefended and overbroad claim constructions, as explained further below.

V. PETITIONER HAS NOT MET ITS THRESHOLD BURDEN

Petitioner has the burden of proof to establish entitlement to relief. “Review shall not be instituted unless the Board decides that the information presented in the petition demonstrates that there is a reasonable likelihood that at least one of the claims challenged in the petition is unpatentable.” 37 CFR § 42.108(c). The Petition should be denied as failing to meet this threshold evidentiary burden for institution.

Of the claims challenged in the Petition, only claims 1, 9, and 11 are written in independent form. The Petition purports to raise the following grounds based solely on redundant theories of obviousness under 35 U.S.C. § 103:

Ground	References	Challenged Claims
1	Kiang in view of Zhang	1–4, 9, 10
2	Kiang in view of Zhang and Jacobsmeyer	5, 6, 8
3	Kiang in view of Zhang, Jacobsmeyer, and Hortensius	7
4	Tong	1, 4, 9, 10
5	Tong in view of Zhang	2, 3
6	Tong in view of Jacobsmeyer	5, 6, 8
7	Tong in view of Jacobsmeyer and Hortensius	7
8	Tong in view of Chung	11–13

A. Zhang has not been shown to cure the acknowledged deficiencies of Kiang (Grounds 1–3)

Regarding independent claim 1, Petitioner failed at least to establish it is more likely than not that the proposed combination of Kiang and Zhang would have rendered obvious the claimed periodic timing of a “first rate” and a “second rate” at which the mobile station reports channel quality information to a base station, where the “first rate” of reporting is applied “in the absence of a reception of a data transmission from the base station” and the “varying” (and hence distinct) “second rate” of reporting is applied “for a prescribed duration” “upon detection of a reception [at the mobile station] of a data transmission from the base station.”

Petitioner characterizes Kiang as allegedly disclosing “sending system data (channel quality information) either (1) periodically as a function of the arrival of data transmissions from the BTS or (2) synchronously with the receipt of a burst

transmission from the BTS (both the presence or absence of a reception of data at the mobile station).” Pet. 26, 30. Petitioner acknowledges, however, that Kiang is deficient as to a mobile station reporting channel quality information to a base station at “a first rate in the absence of a reception of a data transmission.” Pet. 30 (purporting to address what the Petition refers to as limitation “1[b]”). Petitioner further acknowledges that Kiang does not disclose a mobile station reporting channel quality information to the base station at “a second rate” “for a prescribed duration” “upon detection of a reception of a data transmission.” *Id.*, 32 (purporting to address what the Petition refers to as limitation “1[c]”).

At a minimum, Petitioner failed to establish it is more likely than not that the cited portions of Zhang would have rendered obvious the claim 1 limitations (1[b] and 1[c]) admittedly missing from Kiang. For limitation 1[b], Petitioner argues “Zhang’s station enters a control hold state when ‘the data buffer within an active user becomes empty for some period of time,’ (i.e., no transmissions are being received) and then the device will only send control transmissions (reporting channel quality information) at a reduced rate.” Pet. 31. According to Petitioner, Zhang discloses that the mobile station transmissions occurring during the control hold state are timed in accordance with “when ‘the data buffer within an active user becomes empty for some period of time.’” *Id.*

The Petition lacks any specific reasoning, based on evidence of record, to establish that Petitioner’s characterization of Zhang would have rendered obvious the plainly distinct claim requirement of a mobile station reporting channel quality

information to a base station at “a first rate in the absence of a reception of a data transmission” from the base station (as recited in limitation 1[b]). See *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”). While the Petition does not cite to the attached declaration of Mr. Gray (Ex. 1003) on this point, the declaration is likewise void of any specific reasoning, based on evidence of record, to support the same legal conclusion.

The burden does not shift to Patent Owner to disprove Petitioner’s attorney argument concerning Zhang, particularly given the Petition lacks any specific reasoning for Patent Owner to counter here. Nevertheless, further scrutiny of Petitioner’s unexplained quotation of Zhang only underscores patentable distinctions.¹ For example, in purporting to address limitation 1[b], Petitioner failed to identify (much less with evidentiary support) where the so-called “buffer” referenced in the partially-quoted statement in the Zhang Provisional is located and what purpose the “buffer” allegedly serves. Pet. 31 (quoting Ex. 1007, 3:1–10). Moreover, Petitioner failed to explain how a *non-empty* buffer that is actively being emptied *by a data transmission* satisfies plainly distinguishable claim language

¹ The Petition does not argue or even suggest that any of its citations to Zhang (Ex. 1006) contains disclosure different from a corresponding citation to the Zhang Provisional (Ex. 1007). To the extent a cited portion of Zhang contains disclosure that is differentiated from, and not supported by, the Zhang Provisional, then such disclosure in Zhang cannot properly be considered prior art as to the ’876 patent.

directed to applying a “first rate in the absence of a reception of a data transmission.” To be clear, the claim language does not recite the “first rate” as being applied sometime after a non-empty buffer has been emptied, but rather the “first rate” expressly applies “in the *absence* of a reception of a data transmission.”

The same paragraph of the Zhang Provisional (Ex. 1007) further undermines Petitioner’s undefended “i.e.” premise concerning limitation 1[b]. Pet. 31. For example, the cited paragraph expressly characterizes Zhang’s so-called “control hold state” as involving continual transmissions “*in both directions* with either full rate or a reduced rate.” Ex. 1007, 3:7–8 (emphasis added). At a minimum, Petitioner failed to explain how the disclosed bidirectional communication and distinguishable timing applied in Zhang’s control hold state would have rendered obvious the “first rate” of claim 1, particularly where claim 1 qualifies the “first rate” as being applied “in the absence of reception of a data transmission.”

Regarding limitation 1[c], Petitioner likewise fails at least to establish it is more likely than not that the cited portions of the Zhang references would have cured the acknowledged deficiencies of Kiang concerning a mobile station reporting channel quality information to the base station at “a second rate” “for a prescribed duration” “upon detection of a reception of a data transmission.” Petitioner purports to offer two alternative theories for the requirements that the “second rate” must commence “upon detection of a reception of a data transmission” and end upon expiration of a “prescribed duration.”

First, Petitioner argues that “Zhang discloses requiring a buffer to be empty for a period of time before switching from the active state to the control hold state.” Pet. 33. At best, Petitioner’s conclusory statement characterizes Zhang’s so-called “active state” only in terms of when it allegedly *ends* (supposedly sometime after an unspecified buffer has been emptied through data transmissions). *Id.* Petitioner’s characterization of Zang lacks any specific reasoning, based on evidence of record, as to when Zhang’s active state allegedly *commences*. It follows that Petitioner failed at least to establish Zhang discloses the claimed “second rate” in terms of necessarily commencing “upon detection of a reception of a data transmission.”

Petitioner’s characterization of Zhang’s active state in terms of when it allegedly *ends* also bears no resemblance to the claim language in question. As noted above, claim 1 qualifies the “second rate” as commencing “upon detection of a reception of a data transmission” and as lasting until a “prescribed duration” expires. Petitioner argues that Zhang’s active state terminates in accordance with when an unspecified buffer is fully emptied. Petitioner made no attempt to establish that a *varying* and *unspecified* amount of time necessary to empty an unspecified amount of data in a buffer satisfies the claimed “*prescribed duration*.” There is nothing in the record to dispute the straightforward understanding that the amount of time necessary to empty a varying amount of data in a buffer is itself variable and hence not a “prescribed duration” as claimed.

It is unavailing to Petitioner, therefore, whether the Zhang references disclose an “active state” that allegedly lasts for an unspecified *variable* amount of time, with

the variable termination tethered to how long it takes to empty a buffer having an *unspecified* amount of data. Even if Petitioner's characterization of the Zhang references is correct, which Patent Owner does not concede, it bears no resemblance to the claim language in question, including at least the plain requirements that the "second rate" must commence "upon detection of a reception of a data transmission" and end upon expiration of a "prescribed duration."

To the extent Petitioner's challenge depends upon a particular construction of the claim language in question, Petitioner failed to articulate such a construction within the Petition itself, much less meet its burden to defend such a construction with specific reasoning, based on evidence of record. That the claimed "*duration*" of the "second rate" is necessarily "*prescribed*" (i.e., fixed and not variable) is consistent with the remainder of the intrinsic evidence. For example, the '876 patent provides the following relevant disclosure:

[Upon detection of a transmission from the base station, the mobile station can report channel quality information at a second rate for a prescribed duration after the detection of the transmission. In this manner, the rate feedback may therefore be provided at a faster rate for a period of time even though transmission from the base station has ended. By way of example, a mobile station may report rate feedback every 100 milliseconds in the absence of a transmission. Upon detection of a transmission from the base station, the mobile station can then provide rate feedback every 20 milliseconds for a prescribed period of ***time regardless of whether transmission ends from the base station***. At the end of that prescribed period of time and assuming there is an absence of a transmission, the mobile station would then resume reporting of rate feedback at the first rate of 100 milliseconds (e.g., the slower rate).

Ex. 1001, 5:4–20 (emphasis added). The above disclosure confirms the plain and ordinary meaning of a “prescribed duration” (as set forth in the claim language) refers to a period of time commencing “upon detection of a reception of a data transmission” and lasting until the “prescribed duration” expires. The above disclosure also supports interpreting this “prescribed duration” as remaining fixed and independent of when, or even whether, “transmission ends from the base station.” *Id.* Petitioner points to nothing in Zhang remotely resembling the “prescribed duration” recited in claim 1.

Second, Petitioner argues that “Zhang discloses setting a timer for the active state and switching the control state at the expiration of the timer.” Pet. 33. Petitioner then quotes a passage of the Zhang Provisional (Ex. 1007), which states the so-called “timer” is set only “after the primary active user’s buffer at the network-level becomes empty.” *Id.*, 33–34 (quoting Ex. 1007, 9:22–31).

Once again, Petitioner failed to specifically articulate why a *variable* duration, admittedly timed according to the *variable* amount of time it takes to empty an *unspecified* amount of data from a buffer, would have rendered obvious the plainly distinguishable claim language in question, including at least the plain requirements that the “second rate” must commence “upon detection of a reception of a data transmission” and end upon expiration of a “prescribed duration.” Further, Petitioner once again failed to articulate and defend any claim construction that would unreasonably broaden claim scope to encompass the distinguishable disclosure of Zhang Petitioner cited.

Accordingly, for each of the reasons discussed above, the Petition failed to establish it is more likely than not that the cited teachings of the Zhang references would have rendered obvious recitations of claim 1 admittedly missing from Kiang. The Petition purports to rely exclusively on its analysis of claim 1 in challenging what Petitioner refers to as “substantially similar” language of independent claim 9. Pet. 34–35. Petitioner’s challenge of claim 9 is thus tainted by at least the same deficiencies identified herein. It follows that Grounds 1 through 3 of the Petition fail to meet the evidentiary threshold burden for institution.

**B. Petitioner’s single-reference assertion of Tong is deficient
(Grounds 4–7)**

Petitioner’s single-reference assertion of Tong fails no better. Regarding independent claim 1, Petitioner likewise failed at least to establish it is more likely than not that Tong would have rendered obvious the claimed periodic timing of a “first rate” and a “second rate” at which the mobile station reports channel quality information to a base station, where the “first rate” of reporting is applied “in the absence of a reception of a data transmission from the base station” and the “varying” (and hence distinct) “second rate” of reporting is applied “for a prescribed duration” “upon detection of a reception [at the mobile station] of a data transmission from the base station.”

For limitations 1[b] and 1[c], Petitioner mischaracterizes Tong as disclosing a system in which mobile stations periodically send a “pilot signal” to a base transceiver station (BTS) at different rates. Pet. 48–50. While Petitioner offers several citations to the attached declaration of Mr. Gray, the cited testimony merely

copies verbatim (including all typos) the conclusory attorney argument set forth in the Petition. Paragraph 46 of Tong is the only paragraph cited in the Petition in addressing limitations 1[b] and 1[c]. See Pet. 49 (citing Ex. 1010, ¶ 46) and Pet 50 (citing the same).

The single cited paragraph of Tong does not support Petitioner’s undefended premise that the so-called “pilot signal” is transmitted periodically *from* a mobile station *to* the BTS. Ex. 1010, ¶ 46. On the contrary, the cited paragraph confirms the disclosed “pilot signals” are transmitted *from* the BTS *to* an entire user group (consisting of multiple mobile stations).

In one variation of this embodiment, the pilot signal is transmitted every other time interval such that it corresponds to time intervals that are allocated to the user group. However, in another embodiment, the pilot signal is further suppressed when no data is transmitted during an allocated time interval. However, in order to allow user terminals to determine channel quality conditions for the user group in which data is not being transmitted, the pilot signal must be periodically transmitted even when data is not present, even though such pilot signal transmission is not transmitted in each allocated time interval. Thus, for example, *the pilot signal for user group 3 is transmitted every four slot cycles even when data is not transmitted for the user group. Thus, user terminals are able to determine channel quality for the user group based upon the transmitted pilot signal.*

Id. (emphasis added). That Tong’s “pilot signals” are transmitted to and received by the user terminals is confirmed elsewhere in the reference. See, e.g., *id.*, ¶ 44 (“... the pilot signals of the various beams *the user terminal receives.*”) (emphasis added).

The incontrovertible fact that Tong’s “pilot signals” are transmitted from the BTS to a user terminal(s) underscores a fatal flaw of the Petition. As noted above,

claim 1 recites a “first rate” and a “second rate” at which *the mobile station reports channel quality information to a base station*. This direction and specific content for periodic reporting (timed according to two specified rates each applied under certain recited conditions) is plainly distinguishable from Tong’s “pilot signals” transmitted from the BTS to a user terminal(s). The Petition simply failed to identify any express disclosure in Tong satisfying the requirement of periodically reporting channel quality information *from a mobile station to a base in the station* at the recited “first rate” and “second rate” under the recited conditions and timing set forth in claim 1.

As additional and independent bases for denial, Tong’s description of the timing applied to its “pilot signals” transmitted from the BTS are also plainly distinguishable from the claim language in question. According to Petitioner, Tong discloses that “pilot signals” are transmitted at a “first rate” of once every fourth slot cycle in the absence of the BTS transmitting data; and “pilot signals” are allegedly transmitted at a “second rate” of once per slot cycle while the BTS is transmitting data. Pet. 50.

Unlike Petitioner’s characterization of Tong, claim 1 does not tether the *fixed* “prescribed duration” of the “second rate” to a *variable* duration of how long a base station might be transmitting. Rather, as explained above, claim 1 temporally qualifies the “second rate” in terms of necessarily commencing “upon detection of a reception of a data transmission” and lasting until the expiration of the “prescribed duration,” such that application of the “second rate” has fixed start and stop times independent of a variable duration of how long a base station might be transmitting.

See § V.A, *supra* (collecting citations to intrinsic evidence). Petitioner did not even attempt to establish the sole cited paragraph of Tong contains any such disclosure.

Accordingly, for each of the reasons discussed above, Petitioner failed to establish it is more likely than not that Tong alone would have rendered claim 1 obvious. Petitioner purports to rely exclusively on its assertion of Tong against claim 1 in challenging what Petitioner refers to as “substantially similar” language of independent claim 9. Pet. 51. Petitioner’s challenge of claim 9 over Tong is thus tainted by at least the same deficiencies identified herein. It follows that Grounds 4 through 7 of the Petition fail to meet the evidentiary threshold burden for institution.

C. Petition failed to establish it is more likely than not that the proposed combination of Chung and Tong would have rendered claim 11 obvious (Ground 8)

Regarding independent claim 11, Petitioner cites to its deficient analysis of claim 1, stating “Tong teaches varying a rate for reporting channel quality information from a mobile station to a base station.” Pet. 60. Petitioner does not purport to rely on Chung for this claim language. Petitioner’s reliance on Tong for the varying first and second rates of reporting is deficient for at least the reasons set forth above. See § V.B, *supra*. Such deficiencies provide independent bases to determine Petitioner has not met its evidentiary burden with respect to Ground 8.

The remainder of Petitioner’s challenge of claim 11 (under Ground 8) is tainted by additional fatal deficiencies. Petitioner acknowledges that Tong does not disclose varying a rate of reporting from a mobile station to a base station “as a function of the number of base stations with which the mobile station is

communicating.” Petitioner failed to establish that it is more likely than not that Chung would have rendered obvious this admitted deficiency of Tong.

According to Petitioner, Chung teaches controlling the reverse link rate using a variable “MaxRate.” Pet. 61 (citing Ex. 1011, 2:66–3:16). Petitioner overlooks that Chung describes its MaxRate as an optimized rate at which a mobile station (MS) communicates *data transmissions* on a reverse data channel to a base station (BS). *See, e.g.*, Ex. 1011, 2:58–68. Petitioner failed to articulate specific reasoning, based on evidence of record, even purporting to establish that Chung’s MaxRate pertains, instead, to periodic reporting of channel quality information from a mobile station to a base station, much less varying a rate for such reporting as a function of the number of base stations with which the mobile station is communicating. Nor did Petitioner explain how it allegedly would have been obvious or even operable to apply the same MaxRate (in Chung) used for *data transmissions* as, instead, a distinct rate for the periodic reporting of *channel quality information*.

Petitioner also failed to establish that Chung’s MaxRate varies a rate of reporting “as a function of the number of base stations to which the mobile station is communicating.” Petitioner offers partial quotations from a passage in Chung more fully reproduced below:

When a MS is in handoff, it gets several rate control commands from active sectors. If any of these commands is “down,” then the MS needs to lower its MaxRate to $\frac{1}{3}$ of its CurrentRate or 9.6 kbps, whichever is higher. If all of the commands are “up,” then the MS increases its MaxRate to two times its CurrentRate or 153.6 kbps, whichever is lower.

Ex. 1011, 13:21–26; *see also* Pet. 61 (partially quoting the same).

The cited passage of Chung (reproduced above) does not disclose, and certainly has not been shown to disclose, that the MaxRate varies “as a function of the number base stations with which the mobile station is communicating,” as recited in claim 11. At best, the cited passage of Chung discloses that the MaxRate is set responsive to “rate control commands” instructing either to “up” the MaxRate or “down” the MaxRate. Ex. 1011, 13:21–26.

The Petition lacks specific reasoning, based on evidence of record, sufficient to establish that Chung discloses its rate control commands (received as either “up” or “down” instructions) vary a rate of the mobile station reporting *as function of the number of base stations to which a mobile station is communicating*. This fatal deficiency is not surprising. The cited disclosure in Chung plainly states that if *all* the data rate control commands are received as “up,” then the MaxRate (applied for data transmissions) would increase to twice its current rate. *Id.* Chung’s conditional response to receiving all “up” rate control command instructions is executed *regardless* of the number of base station(s) that might have sent such rate control commands to the mobile station. The cited passage of Chung further discloses that if *any* of the data rate control commands are received as “down,” then the mobile station lowers its MaxRate (applied for data transmissions) to a third of its current rate. *Id.* Chung’s conditional response to receiving any “down” rate control command instructions is likewise executed *regardless* of the number of base station(s) that might have sent such rate control commands to the mobile station.

In sum, Petitioner's purported reliance on Chung's description of conditional responses to "up" or "down" data rate control commands bears no resemblance to the claim 11 requirement of varying a rate of reporting channel quality information from a mobile station to a base station "as a function of the number of base stations with which the mobile station is communicating." Accordingly, for each of the reasons discussed above, the Petition failed to establish it is more likely than not that claim 11 would have been obvious in view of the proposed combination of Tong and Chung.

D. Petitioner's challenges of the dependent claims are all tainted by its deficient challenges of the independent claims.

Because Petitioner has failed to meet its burden to prove a reasonable likelihood that any challenged independent claim would have been obvious, Petitioner likewise has failed to establish a reasonable likelihood that any challenged dependent claim is unpatentable.

VI. CONCLUSION

For the foregoing reasons, WSOU respectfully requests that the Petition be denied in its entirety as failing to establish a reasonable likelihood that at least one of the claims challenged is unpatentable.

Date: July 12, 2023

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Preliminary Response to Petition complies with the type-volume limitation of 37 C.F.R. § 42.24(b)(1) because it contains fewer than the limit of 14,000 words, as determined by the word-processing program used to prepare the brief, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a)(1).

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e), I certify that I caused to be served an electronic copy of the foregoing Patent Owner's Preliminary Response, along with any accompanying exhibits filed via the PTAB E2E system, to Petitioner's counsel at the following addresses identified in the Petition's consent to electronic service:

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