

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioners,

v.

EMPIRE TECHNOLOGY DEVELOPMENT LLC,
Patent Owner.

Case No. IPR2024-00896
U.S. Patent No. 8,798,120

PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW

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Ex-2008	Defendants’ Patent Local Rule 3-3 Disclosure of Invalidity Contentions and Subject Matter Eligibility Contentions, <i>Empire Technology Development LLC v. Samsung Electronics Co., Ltd., et al.</i> , 2:23-cv-00427, ECF No. 25 (E.D. Tex. Mar. 29, 2024)
Ex-2009	Katherine K. Vidal, <i>Memorandum re Interim Procedure for Discretionary Denials</i> , UNITED STATES PATENT AND TRADEMARK OFFICE (June 21, 2022), https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_2022_0621_.pdf .
Ex-2010	Defendants’ Identification of Preliminary Claim Constructions, <i>Empire Technology Development LLC v. Samsung Electronics Co., Ltd., et al.</i> , 2:23-cv-00427, ECF No. 25 (E.D. Tex. Oct. 9, 2024)
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Ex-2017	Isabella D. Lutz and Matthew C. Valenti, "Bridging the Security Gap: Lessons from 5G and What 6G Should Do Better"
Ex-2018	Excerpts from Telecom Dictionary, 2007
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Ex-2027	Final Judgment, <i>Empire Technology Development LLC v. Samsung Electronics Co., Ltd., et al.</i> , 2:23-cv-00427, ECF No. 275 (E.D. Tex. Jul. 15, 2025)

I. INTRODUCTION

Patent Owner hereby requests Director Review of the Final Decision finding claims 25-28 unpatentable. *First*, the Board failed to follow the district court's claim construction and, instead, applied an unsupportable construction that is directly contrary to the Petition itself, the intrinsic record, and both parties' experts.

The district court construed "idle power consumption of the mobile station" as "a *power consumed* by the mobile station *when the mobile station is powered on and waiting to send.*" Ex-1050, 12 (emphases added). But the Board failed to apply the court's "power consumed" and "waiting to send" requirements by finding powered-*off* transceivers meet the limitation. Paper 33, 11–15.

The Board dismissed overwhelming evidence from both sides on the fundamental point that a mobile station cannot be "waiting to send" data when its transceivers are off. *See infra* Section III.A. This record evidence includes, for example, *the Petition's repeated statements that "idle power consumption means that the circuits are powered* but have nothing to transmit or receive," Paper 3 ("Pet."), 25, 41, 49 (emphasis added); *see* Ex-2013, 49:20–50:7 (confirming that "powered" means "not powered off"). In fact, both the Petition and the Board stated that circuits that are powered off "no longer contribute to station idle power consumption." Pet., 41; Paper 33, 25. The Final Decision even copies a figure from the Petition demonstrating that a turned-off transmitter and receiver are not part of a

mobile station's idle power consumption. Paper 33, 25 (citing Pet., 42). Additionally, Petitioner's expert testified that a powered-off transceiver is not "waiting to send" or in idle mode. Ex-2013, 60:19–61:9. The record evidence also includes the Examiner's allowance of the '120 Patent over prior art disclosing a transceiver with a "sleep mode where all the circuits in the signal path are shut down to save energy." *See infra* Section III.A.iv. The Board's failure to apply the correct claim construction is one of several reasons the Final Decision finding claims 25-28 unpatentable is an abuse of discretion and should be reversed.

Moreover, the Board's unsupportable conclusions that (i) the references disclose the claimed idle power consumption-based control signal, (ii) the disclosure in Petitioner's principal reference (Cui-2003) of sleep mode is the same as idle, and (iii) institution was appropriate, *each* are further and independent bases for reversal.

II. LEGAL STANDARD

Director Review is appropriate when the Board abuses its discretion in the final decision. Director Review Process § 2.B; 37 C.F.R. § 42.75. "The Board abuses its discretion if its decision (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision." *Sierra Wireless, ULC v. Sisvel S.p.A.*, 130 F.4th 1019, 1024 (Fed. Cir. 2025). Patent Owner's arguments below demonstrate that the

aforementioned criteria have been met, meriting Director Review.

III. ARGUMENT

A. The Final Decision Failed to Follow the District Court's Construction and Contravened the Intrinsic Evidence, the Petition, and the Expert Testimony

i. *The Final Decision Contravenes the District Court's Claim Construction Order*

At institution, the Board interpreted “idle power consumption” as “including power consumption during which the transceiver may be waiting to send data, *whether the transceiver is on or off.*” Paper 15, 25 (emphasis added). Patent Owner (and Petitioner) submitted evidence directly contradicting this provisional construction. Paper 19 (“PO Resp.”), 11–17; Paper 23, 2–11; Paper 32, 25–29, 51.

At the district court, Petitioner proposed a construction (“power used by the mobile station when it is not sending data over the communications channel”) that relied, in part, on the Board's preliminary construction. *See* Ex-1050, 12. In rejecting Petitioner's proposed construction, the district court held that “the specification shows the ‘idle’ time is simply the time in which the device is on and waiting to transmit.” *Id.* To be “waiting to transmit,” the mobile station must be ready to send data when needed or conditions allow, requiring at least some transceivers idling. *See id.*, 2 (“[H]igher transmission rates require more power, so it makes sense to switch to a lower transmission rate if the lower rate works for a particular

application. But switching to too low a rate might also be inefficient because the transmitter circuitry spends time idling, which still consumes power.” (citing Ex-1001, 2:64–3:7)); *id.*, 12 (“[I]f the transmission rate is too slow, a greater number of transceivers may become idle, waiting to send transmissions over the communication channel.” (citing Ex-1001, 3:3–5)).

The Board's Final Decision stated that it adopted the district court's construction of “idle power consumption.” Paper 33, 11. But the Board's application of the construction did the opposite. The Board rejected the premise that “transceivers must be idling and cannot be powered off.” *Id.*, 11–15. Instead, the Board ignored the entire record and found that *a mobile station can be “waiting to send” data when its transceivers are powered off*. *Id.*

Because the evidence universally demonstrates that a mobile station cannot be “waiting to send” data with powered-off transceivers, the Board's interpretation rendered “waiting to send” entirely meaningless. The Board's erroneous finding with respect to the scope of this claim term effectively reinstated its provisional construction of “power consumption during which the transceiver may be waiting to send data, *whether the transceiver is on or off*.” Paper 15, 25 (emphasis added). In doing so, the Board made an error of law and thus abused its discretion.

ii. The Final Decision Contravenes the Claims and Specification

The Board's construction contravenes the plain text of the claims. Claims 25–

28 expressly recite “idle power consumption.” Ex-1001, 19:19–20:2. If transceivers were off during idle times, no power would be consumed and there would be no reason for the mobile station to consider idle power consumption for mode selection.

The specification also explains, unambiguously, that transceivers cannot be off when the mobile station is idle, waiting to send data. *Id.*, 2:58–64, 3:3–5, 8:55–58. The express explanation in the specification of “idle power consumption” is the power consumed by the mobile station when the transceivers are idle, waiting to send data over the communication channel:

The idle time is a time during which the transceiver may be waiting to send data over the communications channel. The transceiver may, for example, be waiting for a scheduled start time for the transceiver to use the communications channel ***[I]f the transmission rate is too slow, a greater number of transceivers may become idle, waiting to send transmissions*** over the communication channel.

Id., 2:60–64, 3:3–5 (emphases added).

With no prompting by the litigants, the Board interpreted the specification as disclosing ***two*** distinct “idle power” embodiments—one involving the transceiver and one concerning the mobile station. Paper 33, 13–14. This was legal error because the patent discloses only one idle power embodiment. Neither side argued otherwise.

More specifically, the Board disregarded the above-quoted passage by stating that it discloses an embodiment specific to transceivers, *cf. id.*, 13, and distinguished it from a later passage the Board found to be a second embodiment: “***Recall the idle***

time may include times during which the mobile station 410 is waiting to send data over the communications channel, such as waiting for a scheduled time to begin transmission,” *id.* (citing Ex-1001, 8:55–58) (emphasis added).

But the sentence beginning with “Recall...” simply (and specifically) “recalls” the previous passage and refers to that one embodiment for further discussion. Both passages describe the exact same embodiment. The Board erred in finding that the sentence beginning with “Recall...” discloses an entirely separate embodiment. The specification does not contemplate that a mobile station may be idling if its transceivers are powered off. Ex-2022, ¶ 51.

A mobile station is not waiting to send without a transceiver ready to perform the sending. The Board reached its conclusion by characterizing the exclusion of powered-off transceivers as a further limitation instead of recognizing that the “waiting to send” requirement means all transceivers cannot be powered off. *Cf.* Paper 33, 13–14. The Board’s interpretation contravenes the patent, which plainly equates waiting to send with idling transceivers. *See* Ex-1001, 3:3–5. The specification clearly discloses that if the transceivers are powered off (and thus not idling), the mobile station may still be powered on, but it cannot be waiting to send. *See id.*; Ex-2013, 60:19–61:9; Ex-1052, 46:5–8.

iii. The Final Decision Contravenes the Petition

The Petition itself confirms that at least some transceivers must be powered

on during idle times. Petitioner expressly equated “the claimed ‘idle’ mode” with “***circuits powered on*** but not transmitting.” Pet., 46 (emphasis added). Citing the specification for support, the Petition repeated, ***on three occasions***, that “***idle power consumption means the circuits are powered*** but have nothing to transmit or receive.” *Id.*, 25, 41, 49 (emphasis added). Petitioner’s expert agreed and stated that this means the circuits “are not powered off.” Ex-2013, 49:20–50:7.

Petitioner—and the Board—also stated that when circuits are powered off, “they no longer contribute to station idle power consumption.” Pet., 41; Paper 33, 25. The Board even reproduced a figure from the Petition confirming that in SIMO mode, a turned-off transmitter and receiver (indicated by an **X**) are not part of a mobile station’s idle power consumption. Paper 33, 25 (citing Pet., 42).

Additionally, as the Petition stated, and the Board acknowledged, “the overall ***idle power of the mobile station is the sum of all the transmit and receiver idle power consumption*** for each activated antenna.” *Id.* (citing Pet., 41) (emphasis added). This confirms that idle power consumption of the mobile station is nothing more than the idle power of the transceivers such that at least some transceivers must be powered on and idle for there to be any idle power consumption and for the mobile station to be “waiting to transmit” during idle time (as required by the claim construction). *See id.*; Ex-1050, 12.

iv. *The Final Decision Contravenes the Prosecution History*

The prosecution history confirms that “idle power consumption” is not met when transceivers are powered off. Paper 11, 7–9, 18–20, 27–33 (citing Ex-1026, 1092; Ex-1025, 2350–51; Ex-1004, 94–97, 147–150, 189); PO Resp., 8–10, 16–17.

During prosecution, the Examiner applied Cui-2004 in rejecting certain pending claims but never cited that reference against the pending claims that included an idle power or idle time limitation. Ex-1004, 94–97, 147–150. Cui-2004 describes a “sleep mode” as follows: “The transceiver . . . returns to the *sleep mode where all the circuits in the signal path are shut down* to save energy.” *Cf.* Ex-1026, 1092 (emphasis added). Despite this “sleep mode” disclosure, the Examiner concluded that “the prior art of record fails to anticipate or render obvious the limitations regarding the consideration of power during idle periods” Ex-1004, 189.¹ The prosecution record thus shows that a mobile station with powered-off transceivers cannot satisfy “idle power consumption.”

The Board erred in requiring “express statements” from the Examiner during prosecution “particularly addressing” sleep mode. *Cf.* Paper 33, 14. The law is clear that even if statements or actions during prosecution “do not rise to the level of unmistakable disavowal, they do inform the claim construction.” *Eye Therapies, LLC v. Slayback Pharma, LLC*, 141 F.4th 1264, 1269 (Fed. Cir. 2025) (quoting *Shire*

¹ Petitioner agreed Cui-2004 “does not teach idle power consumption.” Pet., 22 n.6.

Dev., LLC v. Watson Pharms., Inc., 787 F.3d 1359, 1366 (Fed. Cir. 2015)).

v. *The Final Decision Contravenes Both Sides' Expert Testimony*

Petitioner's expert testified that a fully powered-off transceiver is not "waiting to send" or in idle mode:

Q. So *if it is fully powered off, . . . the transceiver is not waiting to send, right?*

A. *If it is fully powered off, I think that would be fair that you would fully power it off at the point that it is no longer wanting to send data, right? So in an idle mode, you would typically have it at least have some power so that it is ready to quickly turn on, right? So, again, you know, I would look at this as when it is in idle mode, it is just not fully powered off, but it could be in any of a continuum amount of power usage states.*

Ex-2013, 60:19–61:9 (emphases added). Petitioner's expert also testified that powered-off circuits do not fall within the scope of "idle power consumption." For example, Petitioner's expert stated, "*Idle power consumption means that the circuits are powered* but have nothing to transmit or receive," Ex-1002, ¶ 86 n.5 (emphasis added), and confirmed that "*circuits are powered*" means circuits "*are not powered off*," Ex-2013, 49:20–50:7 (emphasis added).

Patent Owner's expert agreed that a powered-off transceiver is not waiting to send. Ex-2022, ¶ 51 ("Indeed, a powered off or shut down transceiver is not waiting to do anything, let alone waiting to send data."); Ex-1052, 46:5–8. For example, Patent Owner's expert explained, "'Idle' is a well-understood word, e.g., an idling car, which means powered on but not actively working I understand that neither

Patent Owner nor Petitioners contend that 'idle,' as used in the '120 Patent, has a different meaning in the field of wireless communications." Ex-2022, ¶ 48.

In sum, relying on theories unsupported by the intrinsic evidence or expert testimony, and in direct conflict with the district court's claim construction order and the Petition itself, the Board rendered the "waiting to send" requirement entirely meaningless. The Board's erroneous finding with respect to the scope of this claim term effectively reinstated its preliminary construction of "power consumption during which the transceiver may be waiting to send data, *whether the transceiver is on or off*." Paper 15, 25 (emphasis added). The basis for the Board's determination that Claims 25–28 are unpatentable is its finding that "idle power consumption of the mobile station" covers powered-off transceivers. That finding is clearly erroneous, an abuse of discretion, and should be reversed or vacated.

B. The Li-Siam Combination Lacks Evidentiary Support

The Board further abused its discretion because the Li-Siam combination does not disclose "a control signal based, at least in part, on an idle power consumption of the mobile station." Paper 33, 38. The Board's conclusion rests on a finding that "Li at least suggests changing from MIMO mode to SIMO mode in an idle device waiting for signals." *Id.*, 28–29 (citing Ex-1002, ¶ 122). But Li does not provide such a suggestion, and even if it did, such a suggestion does not involve consideration of idle power consumption as required by claim 25.

The Board concedes that Li includes only “a single reference to ‘idle mode.’” *Id.*, 28. Li never hints at considering “idle mode” to address the power consumption problem, Ex-1005, ¶¶ 18–19, and ***Petitioner’s expert acknowledged that nothing in Li indicates “idle mode” is in any way involved in mode selection***, see Ex-2013, 69:11–19 (testifying that “this problem” of power consumption is “the extent of Li’s consideration of idle mode”). Petitioner’s expert also understood that Li does not identify any inputs used to select modes. *Id.*, 68:14–69:3.

Thus, the Board’s statement citing Petitioner’s expert that “Li suggests ‘a station in idle mode waiting for incoming signals’ as a particular problem . . . to be solved by switching modes” is simply a conclusory statement unsupported by any record evidence. See Paper 33, 28. Obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). The cited passage from Petitioner’s expert modifies Li’s Figure 2 and generates “corresponding equations” extrapolated from conclusory statements in a manner not supported by Li itself. Cf. Paper 33, 25, 28–29; Ex-1002, ¶ 122. The Board properly discredited Petitioner’s expert testimony when he did the same thing for claim 29 but failed to do so with respect to the Li-Siam combination for claim 25. See Paper 33, 47–48 (“Dr. Valenti’s selecting and modifying Figure

4(b), and accompanying testimony, appear ‘to use the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art—i.e., the impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.’” (quoting *TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1361 (Fed. Cir. 2019))); *see also Interactive Commc’ns Int’l, Inc. v. Blackhawk Network, Inc.*, No. IPR2024-00465, Paper 40, 4 (P.T.A.B. Oct. 9, 2025) (“Having determined that Mr. Hutton is not credible as to multiple material aspects of his testimony, it would be inappropriate in this instance to rely on this testimony for the other grounds.”). Indeed, a POSITA would not read Li to suggest using idle mode in a solution when it is only mentioned as a part of the power consumption problem. *See* Ex-2022, ¶ 83.

Recognizing the deficiency in Li (no idle power consumption limitation), the Board states that “[t]o the extent Li does not teach inputs or other variable relevant to power consumption, Siam provides those teachings.” Paper 33, 29. But Siam is equally deficient. Siam makes no mention of “idle mode,” and none of the inputs to the Siam equation relate to idle power consumption. Pet., 33 n.1; Ex-1006, 877. Siam’s references to power consumption involve “minimiz[ing] the total power consumption *of the network*.” Ex-1006, 880 (emphasis added).

Since neither of the references, individually or in combination, consider idle power in selecting transmission mode at the mobile station, there is no support in the record for Petitioner’s assertion that “the Li-Siam combination teaches considering

circuit power while idle in selecting a transmission mode.” Paper 33, 27 (quoting Paper 22, 12). Thus, *the Li-Siam combination does not arrive at the claimed invention of a control signal based in part on idle power consumption*. Accordingly, the Board's finding regarding the Li-Siam combination should be reversed or vacated since it rests on clearly erroneous fact finding or at least contains no record evidence for the Board's decision.

C. Cui-2003 Does Not Teach Idle Power Consumption Because Its Mobile Station Is Not Waiting to Send During “Sleep Mode”

The Board's decision should also be set aside because it erred in finding that Cui-2003 “teaches an idle power consumption according to claim 25.” *Id.*, 39.

The Board's failure to follow the district court's construction led to its erroneous finding. Under the district court's construction, Cui-2003's sleep mode does not disclose or suggest a mobile station that is “waiting to send data.” The Board's interpretation of Cui-2003's sleep mode is contradicted by the reference itself, which explains that in sleep mode, “all the circuits in the signal path *are shut down* for energy saving.” Ex-1007, 2806 (emphasis added).

The Board's finding rests on the erroneous assumption that a mobile station is “waiting to send” whenever it is turned on and not sending data. *Cf.* Paper 33, 39 (“When Cui-2003's mobile station is not sending data, the mobile station returns to sleep mode, but remains powered on.”). But a mobile station cannot be waiting to

send if it has no ability to send (e.g., when its transceivers are off). Both sides' experts agree that a mobile station cannot be waiting to send if its transceivers are powered off or shut down like in Cui-2003's sleep mode. Ex-2013, 60:19–61:9; Ex-1052, 46:5–8. Cui-2003 confirms that a mobile station cannot be waiting to send in sleep mode because before sending it must first complete a “start-up process” called “transient mode” that “may be slow due to the finite Phase Lock Loop (PLL) settling time in the frequency synthesizer.” *See* Ex-1007, 2806; Ex-2022, ¶ 103.

The Board's reading of Cui-2003's sleep mode is incorrect even under the Board's flawed interpretation of “idle power consumption” where transceivers can be powered off. The '120 Patent explains that power consumed while idling may be significant. Ex-1001, 3:7–10; Ex-2022, ¶ 104. Petitioner's expert agreed that there is “non-negligible energy consumption when idling,” when the mobile station may consume significant processing and transceiver power depending on the implementation. Ex-2013, 102:12–22. By contrast, there is only negligible power consumption in Cui-2003's sleep mode since the power consumed is assumed to be zero. Ex-2022, ¶ 98. Thus, the Board's analysis of Cui-2003's sleep mode is another abuse of discretion that warrants the Final Decision be reversed or vacated.

D. Exceptional Circumstances Warrant *Sua Sponte* Director Review of the Institution Decision

“[T]he PTO is permitted, but never compelled, to institute an IPR

proceeding.” *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016).

The Director is empowered to initiate *sua sponte* review of an institution decision. 37 C.F.R. § 42.75(b). Where, as here, the record reflects exceptional circumstances that compel the need for *sua sponte* review of an institution decision, such review may be initiated more than 21 days after the period for requesting rehearing. *Id.*

First, the '120 Patent issued ***more than ten years*** before Petitioner sought IPR. The Board did not consider the inventors' and owner's settled expectations of validity.² *Second*, at the time of institution, a district court trial had been scheduled to finish ***six months before the Board's Final Decision***. Ex-2006, 1. Trial in fact occurred exactly as scheduled. Ex-2027. And six weeks before that trial, ***Petitioner waived all invalidity defenses rather than have the first available forum (district court) decide validity***. This outcome is directly contrary to the purpose of an IPR proceeding—to allow a cost-effective and faster path to a validity determination. *Gen. Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19, 16–17 (Sept. 6, 2017). The Institution Decision thus is an abuse of discretion, while also contravening both the purpose of IPRs and Patent Owner's settled expectations.

² See, e.g., *Dabico Airport Sols. v. AXA Power ApS*, No. IPR2025-00408, Paper 21, 2–3 (P.T.A.B. June 18, 2025) (“[T]he longer the patent has been in force, the more settled expectations should be[.]”); *DataDome S.A. v. Arkose Labs*, No. IPR2025-00693, Paper 13, 2–3 (P.T.A.B. Aug. 14, 2025); *Samsung Elecs. Co. v. Mobile Data Techs.*, No. IPR2025-00537, Paper 15, 2–3 (P.T.A.B. Aug. 14, 2025); *OnePlus Tech. v. Pantech Corp.*, No. IPR2025-00637, Paper 17, 2 (P.T.A.B. Aug. 14, 2025).

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that Patent Owner's Request for Director Review was served on January 8, 2026, by filing it through the P-TACTS System, as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioners:

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