

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

THETA IP, LLC,
Patent Owner

Inter Partes Review Case No. IPR2024-00817
U.S. Patent No. 10,129,825

**PETITIONER'S AUTHORIZED RESPONSE TO PATENT OWNER'S
REQUEST FOR DIRECTOR REVIEW**

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I. INTRODUCTION

Patent Owner's ("PO") Request for Director Review ("Request") argues that this proceeding retreads previously considered grounds, that the Final Written Decision ("FWD") is inconsistent with Lenovo's IPR, and that the FWD fails to explain why a different outcome is warranted. The Request argues the proceeding should be "de-instituted" on these bases. Each of these assertions is without merit. Petitioner presented a straightforward and compelling case of invalidity never before considered, and the Board expressly distinguished the Lenovo proceeding justifying its different outcome here. The Request simply ignores the Board's explanation.

The '825 Patent describes and claims techniques that dynamically adjust the impedance and/or bias current of a circuit in a receiver signal path to save power when signal conditions are better than worst case. Request, 1-2. In both the patent and an article from the inventor published shortly before the priority date, this adjustment is accomplished by scaling a filter. *See* Petition, 41-44. The Petition identified a critical admission in the inventor's article. The inventor explained that "[o]ne way to achieve [his dynamic filter scaling] would be to use two filters . . . and place one or the other in service as required [34][.]" Ex.1011, 70. As the Petition established, reference [34] is the Behbahani paper (Ex. 1004). Petition, 44. That is, the inventor identified Behbahani's approach as exemplifying the concept he patented shortly thereafter. Consistent with this admission, the Petition proved that Behbahani's approach aligns with the Challenged Claims. Although Behbahani

itself lacks certain low-level details, the Petition established these details via Tan (Ex. 1006) and Leete (Ex. 1005). Petition, Section V.A. These three papers describe the same research project, and Petitioner supported their combination with testimony from Dr. Abidi—the supervising professor who wrote all three papers. *Id.*

Many key components of Petitioner’s invalidity challenge are undisputed. PO does not dispute that the inventor’s article identified Behbahani as a means of dynamic impedance scaling. It does not dispute that Tan and Leete are properly treated conjunctively with Behbahani. Nor does it dispute that Behbahani’s variable filter block dynamically adjusts bias current and impedance to save power during better-than-worst-case conditions. With the deck stacked against it, PO took a tack of avoidance. Regarding the circuit/signal path dispute, PO and its expert repeatedly refused to engage the theory presented by Petitioner. FWD, 46 (“[PO’s] arguments generally fail to address . . . ***Petitioner’s position***¹.”), 54 (same re PO’s argument and supporting expert testimony regarding “signal path”). For the signal-strength-measurement dispute, PO did not proffer any supporting expert testimony. The Board found Petitioner’s expert’s testimony “persuasive” and “unrebutted by [PO].” *Id.*, 35. In short, PO’s strategic decisions dictated the Board’s conclusions. The Director should not second guess them because PO now regrets its approach.

¹ All emphases added unless indicated otherwise.

Turning to PO's request, it should be denied at least because it mischaracterizes this record and Lenovo's prior IPR, misapplies the law, and ignores key aspects of the FWD. First, the Request insists the proceeding should be de-instituted pursuant to §325(d), arguing that the Proposed Ground was considered by the Examiner and that no material error was shown. Request, 1, 7-10. Factually, PO ignores (1) that Leete was not cited, (2) that the Examiner lacked testimony connecting Behbahani, Tan and Leete, and (3) that, assuming the art *was* considered, the FWD demonstrates material error. Legally, PO provides no support for de-instituting a proceeding pursuant to §325(d) *after* a final written decision.

Second, the Request argues that the Petition was a "follow-on" petition to Lenovo's proceeding, which PO argues reach "different, irreconcilable results on multiple issues[.]" faulting the Board for failing to explain why a different outcome is warranted. *Id.*, 1-6, 10-15. In fact, there is no conflict and the Board explained why the issues here are distinct and why a different outcome is warranted. FWD, 58-60. The Request refuses to engage this explanation.

Finally, PO argues that its settled expectations in the '825 Patent's validity favor de-instituting this proceeding. Request, 1-3, 11-12. But PO fails to wrestle with the logical inconsistency of de-instituting after a final written decision. The Office's "settled expectations" doctrine was introduced to manage PTAB workload. Memorandum, Interim Processes for PTAB Workload Management (March 26,

2025), 2. It defies logic to de-institute *after* the proceeding has concluded, erasing (and wasting) the significant effort invested by the Board.

II. PRIOR PROCEEDINGS AND RELATED IPR PROCEEDINGS

The Request identifies prior proceedings in addition to Apple’s. First, PO notes that Samsung was accused of infringing the ’825 Patent and took a license in 2021 before trial began. Request, 2. PO contends that “Samsung . . . included Behbahani in [its] district court invalidity contentions[,]” citing Ex. 2010. *Id.*, 11-12. But the cited contentions are dated November 28, 2016, and Samsung wasn’t accused of infringing the ’825 Patent until a separate lawsuit was filed in 2020. The Request does not resolve this inconsistency and, importantly, does not suggest that *any* tribunal in *any* Samsung action ever addressed invalidity in light of Behbahani.

Second, PO notes that Lenovo was accused of infringing the ’825 Patent and two related patents on June 30, 2022. Lenovo filed IPR petitions challenging the patents on March 7, 2023. The ’825 Patent IPR is discussed below in Section III.B. As with the Samsung district court case, the Request contends that Lenovo “included Behbahani in [its] district court invalidity contentions[,]” citing Ex. 2011. *Id.*, 11-12. But these contentions do not identify Tan or Leete, and the Request does not suggest that any tribunal in any Lenovo action has addressed invalidity in light of Behbahani.

Finally, Petitioner Apple was accused of infringing the ’825 Patent and four related patents on April 28, 2023. Apple filed IPR petitions challenging all five

patents. Each was instituted and reached a final written decision. The Board cancelled all challenged claims in this proceeding and two others. IPR2024-00816, -00817, -00820. But it found no claims unpatentable in IPR2024-00818 and one claim not unpatentable in IPR2024-00819.² PO has indicated it intends to continue asserting the surviving claims against Petitioner Apple in the parallel litigation.

III. THE FWD WAS WELL-REASONED AND CONSISTENT WITH THE INTRINSIC RECORD AND WITH PRIOR DECISIONS

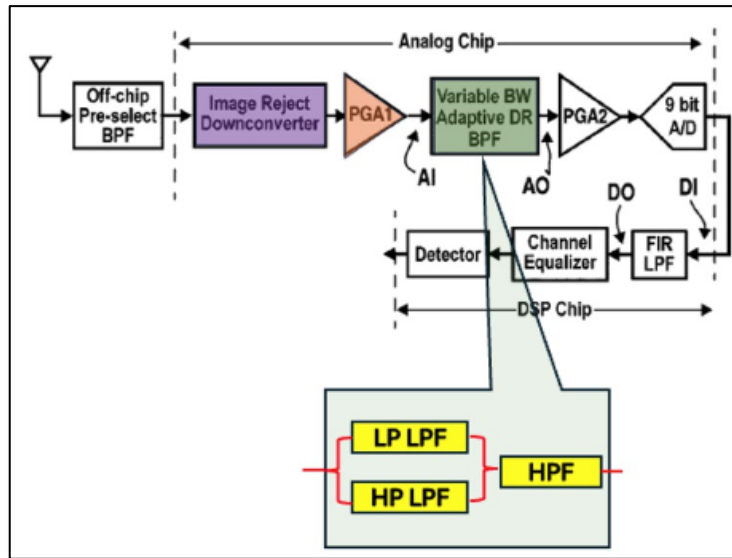
Throughout the Request, PO argues that the FWD conflicts with the intrinsic record and with Lenovo's IPR. Request, 2-7, 12-15. Neither is true.

A. The Board's findings were a natural result of PO's strategic decisions

1. Behbahani's variable filter is a circuit in the signal path whose bias current and impedance are varied

With respect to the claimed "circuit" in the signal path whose bias current and/or impedance is varied, Petitioner relied on Behbahani's variable filter. As illustrated below, the signal flows through a Low Power Low Pass Filter ("LP LPF") or a High Power Low Pass Filter ("HP LPF") before traversing a High Pass Filter ("HPF"):

² These findings turn on a limitation directed to *comparing* signal strengths, which is not at issue in the instant Request.



FWD, 54 (citing Reply, 7, 14; Ex. 1042 ¶5). It is undisputed that, when the LP LPF is used, the signal experiences a higher impedance, and the filter uses a lower bias current and consumes less power. The key disputes between the parties were (1) whether Petitioner relied on the entire variable filter block as the claimed “circuit” in the signal path and, if so, (2) whether the intrinsic record supports excluding switching between filter paths within a “circuit” on the signal path.

Regarding the first dispute, PO repeatedly challenged the nature of Petitioner’s theory while failing to address Petitioner’s theory that Behbahani’s variable filter teaches the recited “circuit” that is dynamically adjusted. FWD, 46, 54. Its Preliminary Response (“POPR”) argued that Petitioner separately mapped the “LP LPF” and “HP LPF” as the claimed “circuit” in the signal path, rather than the entire variable filter block. POPR, 34-50. The parties addressed this in post-POPR briefing, and the Board correctly rejected PO’s arguments at institution. ID, 40, fn11.

Undeterred, PO reiterated in its Response, Sur-Reply, and Motion to Strike that the Petition did not map Behbahani's entire variable filter block to the claimed "circuit." POR, 44-66; Sur-Reply, 3 (insisting Reply deviated from Petition to rely on the entire variable filter block), Mtn. to Strike (Paper 22), 1-6 (same). The FWD again soundly rejected PO's argument. FWD, 10-11. PO's refusal to acknowledge Petitioner's theory infected—and doomed—most of its substantive critiques. *See* FWD, 46 ("[PO's] arguments generally fail to address why Behbahani's Variable Bandpass Filter Block does not teach the recited [circuit in the signal path] and instead focus on why the low-pass and high-pass filter circuits do not teach the limitation, which is not Petitioner's position."), 48 (same), 54 (finding PO and its expert failed to engage Petitioner's position re "signal path"), 56 (finding PO and its expert "improperly focus on the low-power filter and high-power filters individually, which is not consistent with Petitioner's contentions").

Turning to the second key dispute, the Board correctly rejected PO's argument that the intrinsic record supports excluding switching between filter paths within a "circuit" on the signal path. FWD, 45 (concluding "the *claim language* does not exclude Behbahani's approach") (emphasis in original). The FWD addressed Fig. 6, which was PO's primary alleged intrinsic support for its asserted requirement of dynamically adjusting a "single circuit." FWD, 48. The Board found this disclosure failed to support excluding Behbahani's approach of switching between filter

branches. *Id.* (citing Reply, 9-11). Critically, PO's expert conceded on cross examination that the patent does not specify whether Fig. 6 dynamically changes the value of individual elements (PO's interpretation of the claims) or *switches between* elements (Behbahani's approach), thereby capturing both approaches. Reply, 9-11. Finally, the FWD addressed the inventor's pre-patent article. It noted the article is extrinsic evidence that does not determine claim scope, but it nonetheless addressed the parties' arguments and rejected PO's position that the article taught away, rather than embraced, Behbahani's approach. FWD, 50-52.

In sum, the Board's conclusions were mandated by PO's refusal to engage Petitioner's theory, its failure to proffer any intrinsic support, and the inventor's embrace of Behbahani's prior art approach to dynamically scaling filters.

2. Theta's unsupported attorney argument regarding "peak detectors" was properly rejected by the Board

As the FWD summarizes, Behbahani teaches cumulative signal strengths measured at four nodes on the signal path. A_I and A_O measure before and after the variable analog filter and D_I and D_O measure before and after a digital filter. FWD, 31-34. From these cumulative signal measurements, Behbahani discloses or renders obvious circuits for determining strengths of the desired and interferer signals. *Id.*

As with the "signal path" issue, PO's strategic approach to the signal strength measurement limitation dictated the outcome. PO first argued that Behbahani failed to describe "physical implementation details" of a circuit for measuring desired or

interferer signals. The Board observed that the '825 Patent specification itself lacks any meaningful disclosure of such circuits and, based in part on Petitioner's expert's testimony that such circuits were routine, concluded that Behbahani "at least suggests circuitry for . . . determin[ing] signal strength." *Id.*, 34-45.

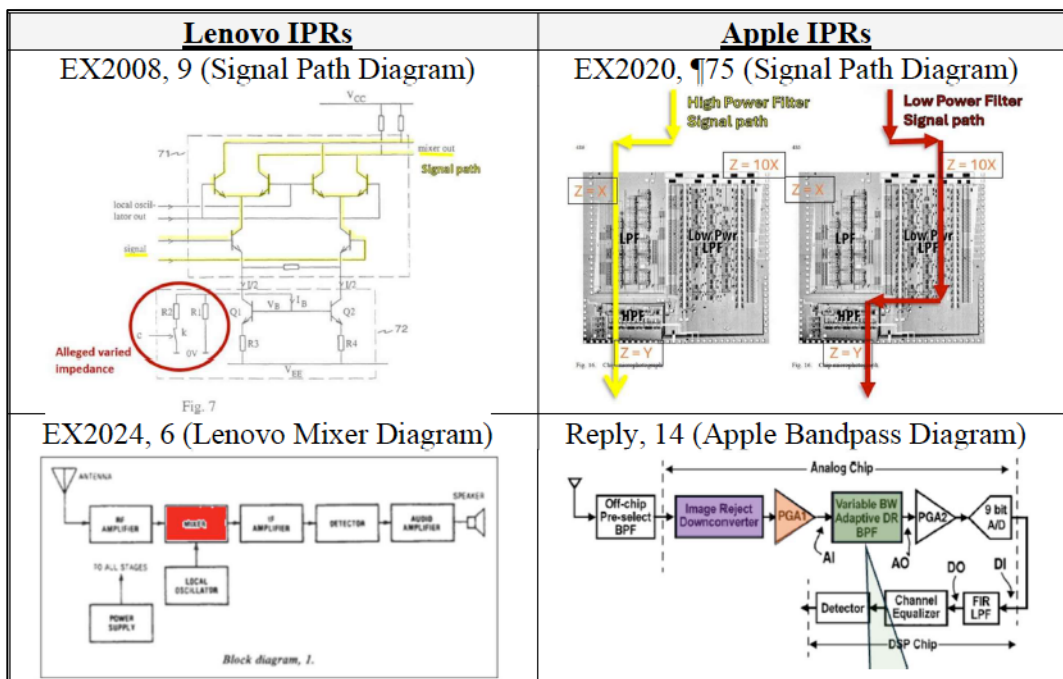
PO next took aim at the specific circuitry relied upon in the Proposed Ground. Petitioner additionally relied on Tan's peak detector circuits, establishing they were an obvious choice to measure Behbahani's nodes. FWD, 32-33. PO declined to introduce its own expert testimony on the issue, instead advancing attorney argument that "it is not possible to measure signal strength with Tan's peak detectors[.]" FWD, 35 (citing POR, 68-70). In a supplemental declaration, Petitioner's expert "provide[d] testimony explaining how Tan's peak detector circuit provides a measure of the signal strength." *Id.* (citing Ex. 1042, ¶15). PO declined to cross examine Petitioner's expert on this point, and the Board found his testimony "persuasive" and "unrebutted by [PO]." *Id.*

B. PO Mischaracterizes Lenovo's Proceeding and Ignores the Board's Discussion of the Lenovo Holding

At the core of PO's Request is its insistence that, "in a particularly egregious fashion, [the FWD] came out the opposite way on two similar questions [] versus the Board panel in" a prior Lenovo-filed IPR. Request, 6. The Request also insists that, for both issues, the FWD "fails to adequately explain . . . 'why a different outcome is warranted.'" *Id.* In fact, there is no discrepancy between these holdings,

and the Board did explain why a different outcome is warranted here. The Request fails to discuss (or even cite) the Board's explanation.

The first allegedly inconsistent holding relates to Petitioner's reliance on Behbahani's entire variable filter block as the claimed "circuit" in the signal path. Comparing the below annotated images, PO insists that the Board accepting Petitioner's reliance on Behbahani's entire filter block cannot be squared with the prior Board rejecting Lenovo's reliance on an entire mixer.



Request, 3-5. But, as the FWD explained in clear terms, Lenovo failed to show a changed impedance of a component in the signal path because it pointed to a control circuit (circled red above) ***through which the signal did not pass***. FWD, 58-59. Importantly, the FWD noted that the prior Board found Lenovo "***had*** sufficiently established" that the bias current was dynamically changed on the mixer's signal

path (annotated yellow above). *Id.* So Lenovo’s challenge did not fail because it pointed to an entire mixer. It failed because the alleged impedance change was ***not in the signal path***. In contrast, as set forth in Section III.A.1 above, Behbahani’s filter block varies both the impedance and bias current on the signal path.

PO next argues that the FWD conflicts with the Lenovo Board’s signal strength measurement finding and ignored PO’s critiques of Tan’s peak detector. Request, 6, 14-15 (claiming “Lenovo’s prior IPR [failed] because both determinations, of each separate signal component, are required.”). As the FWD explains, the FWD’s findings are entirely unlike those in Lenovo’s IPR. There, Lenovo relies on a detector circuit that “provided either the [desired signal] strength or the [interferer] signal strength,” but could not provide “both at the same time[,]” as required by the claims. FWD, 59-60. As set forth above in Section III.A.2, Petitioner prevailed in showing that Behbahani and Tan render obvious measuring both desired and interferer signal strength from a single received signal, as claimed. As also set forth above, the Board correctly rejected PO’s attorney argument-based critiques of Tan’s “peak detector.”

IV. “DISCRETIONARY DE-INSTITUTION” IS WITHOUT SUPPORT

1. Even if §325(d) Applied to a Post-Judgment Proceeding (It Does Not), the Petition Presented Non-Cumulative Grounds

PO’s primary argument turns on §325(d). Request, 7-10. PO insists that *Ecto World*, which issued after institution here, should be applied retroactively to de-

institute this post-judgment proceeding. *Id.* It should not. De-instituting *after* a final written decision wastes significant effort already invested. Further, the ground was not considered, nor is it cumulative, and the FWD demonstrates it would have been error to not reject the claims based on the Petition’s ground.

Per PO: “The core rationale for exercising discretion to deny institution under [§]325(d) is straightforward: *the Office has limited resources*, and there is an interest in granting patent owners ‘repose’ on issues already adjudicated.” POPR, 58. PO’s request to de-institute this proceeding *after* the Board has issued a FWD is in direct conflict with this “core rationale” of §325(d). It does not respect the limited resources of the Office to ignore the hard work invested in reaching the FWD, and PO has not identified a single instance in which *Ecto World* (or any other institution-focused discretionary analysis) has been applied to de-institute a proceeding after a final written decision has issued.³ Indeed, the *Ecto World* decision suggests that changes to discretionary analyses are retroactive *only* for cases in which institution has not been finally resolved. In that case, the parties were involved in a parallel ITC

³ The Request cites two inapposite cases. Request, 8-9. The first, *Sling TV v. Realtime*, granted a motion to terminate a petitioner based on a precedential decision interpreting the §315(b) statutory time bar. *Sling TV*, 2020 WL 261827 at *2 (finding its prior decision “clear legal error” in light of the precedent). The second, *ZTE*, is also unrelated to discretion at institution. There, the Board allowed an RPI update without modifying the filing date. *ZTE*, 2019 WL 1811121 at *3.

proceeding. *Ecto World, LLC v. RAI Strategic Holdings, Inc.*, IPR2024-01280, Paper 13 at 8. When the Petition and POPR were filed, Office policy held that institution would not be denied under *Fintiv* based on a parallel ITC investigation. Before the institution, that policy was rescinded, and the recission applied to “any case in which . . . institution . . . remains pending.” *Id.* Here, PO did not seek rehearing or Director review of the institution decision, and institution had been finally resolved long before PO raised *Ecto World* in its Sur-Reply—three weeks before the oral argument. FWD, 63. As the Board observed, PO also “did not file a motion to terminate the proceeding” on this basis. *Id.* Put simply, there is no legal or logical rationale for de-instituting pursuant to §325(d) at this late stage.

Turning to the “repose” to which PO insists it is entitled, the issues addressed by this Board were **not** previously adjudicated. While the Board did not resolve the first *Advanced Bionics* prong, finding it unnecessary in light of clear material error (ID, 21), the first prong was not in fact satisfied. Although Behbahani and Tan were cited in an IDS, “Leete was not previously presented to the Office[.]” ID, 20-21. In its POPR, PO argued that Leete should be deemed considered by the Examiner because it was referenced by Behbahani and because the Proposed Grounds treat Behbahani, Tan and Leete conjunctively. POPR, 59. But the combination relied importantly on testimony from the primary author explaining the papers’ relationship and why they should be treated conjunctively. *See* Petition, 27, 36-37.

Absent this testimony and missing one of the three references, the Examiner cannot be deemed to have considered the art or arguments analyzed by the Board. Even if the first *Advanced Bionics* prong were satisfied, there was a sufficient showing of material error at institution. First, the Board found that *Becton, Dickenson* factor (c) favored finding material error “because the Examiner did not cite Behbahani or Tan in any rejection[,] did not specifically address either reference in any correspondence,” and did not “address Leete.” ID, 21-22; *see also Ecto World* at 5-6. Second, the Board found that factors (e) and (f) suggest material error based on the Proposed Ground. ID, 22. Here, the Board has now conducted a complete *Inter Partes* Review and has confirmed its preliminary assessment was correct. FWD, 62-63.⁴ Accordingly, if one assumes the first prong satisfied, there was material error.

2. Follow-on petition precedent does not favor “de-instituting”

PO argues the Petition was an improper “follow-on” petition to Lenovo’s proceeding, which PO argues reach “different, irreconcilable results on multiple

⁴ There is also no merit to PO’s argument that §325(d) favors denial simply because the Petition failed to follow the argument format mandated post-*Ecto World*. *See CrowdStrike, Inc. v. GoSecure, Inc.*, IPR2025-00070, Paper 28, fn. 8 (PTAB, Oct. 31, 2024) (“To the extent the [pre-*Ecto World*] Petition’s § 325(d) discussion does not follow exactly the same form that *Ecto World* clarifies is correct, we disagree with Patent Owner’s suggestion that we should reject the Petition retroactively on that basis.”).

issues.” Request, 1-6, 10-15. As set forth in Section III.B, there is no tension. PO next conflates the precedential *General Plastic* holding with proposed rulemaking regarding serial challenges. *Id.*, 10-15. Regarding *General Plastic*, PO fails to acknowledge the Board’s analysis that rejected these exact arguments and found the Petition employed no improper road mapping. ID, 15-17. Regarding the proposed rulemaking, PO provides no rationale for applying a new and unsettled discretionary analysis during a public comment period. Finally, PO wrongly asserts that the Petition presented cumulative art and improperly sequenced its challenge. Sequencing here was a direct result of PO’s own lawsuit sequencing, and the proposed ground has never before been considered.⁵

3. Settled expectations do not favor “de-instituting”

PO argues that its settled expectations in the ’825 Patent’s validity favor de-instituting. Request, 1-3, 11-12. PO fails to wrestle with the logical inconsistency of de-instituting after a final written decision. The Office’s “settled expectations” doctrine was introduced to manage PTAB workload. Memorandum, Interim Processes for PTAB Workload Management (March 26, 2025), 2. It defies logic to de-institute *after* the proceeding has concluded, wasting the Board’s invested effort.

⁵ As set forth in Section II, PO asserted the ’825 Patent against Samsung, Lenovo, and Apple in 2020, 2022, and 2023, respectively. PO does not allege that any tribunal has considered the Proposed Ground and presents no evidence that Tan or Leete were even *known* to Samsung or Lenovo, let alone relied upon by those parties.

Respectfully submitted,

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COUNSEL FOR PETITIONER

CERTIFICATE OF SERVICE ON PATENT OWNER
UNDER 37 C.F.R. § 42.6

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(b), the undersigned certifies that on January 12, 2026, a complete and entire copy of this *Petitioner's Authorized Response to Patent Owner's Request for Director Review* was served on Patent Owner via email.

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Respectfully submitted,

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