

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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SAMSUNG ELECTRONICS CO., LTD.,  
Petitioner,

v.

ONE-E-WAY, INC.,  
Patent Owner.

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Case: IPR2025-01516  
U.S. Patent No. 10,468,047

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**PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE**

**Mail Stop PATENT BOARD Patent Trial and Appeal Board**  
United States Patent and Trademark Office  
PO Box 1450  
Alexandria, Virginia 22313-1450  
*Submitted Electronically via P-TACTS*

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## **PETITIONER’S EXHIBIT LIST**

| <b>Exhibit No.</b> | <b>Description</b>                                                                                                                                                                                       |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001               | U.S. Patent No. 10,468,047 to Woolfork (“’047 patent”)                                                                                                                                                   |
| 1002               | File history of U.S. Application No. 16/185,786, filed November 9, 2018 (“the 2018 application”)                                                                                                         |
| 1003               | File history of U.S. Application No. 10/027,391, filed December 21, 2001 (“the 2001 application”), as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1003           |
| 1004               | U.S. Publication No. 2003/0118196 (“the ’196-Publication”), as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1004                                                  |
| 1005               | File history of U.S. Application No. 10/648,012, filed August 26, 2003 (“the 2003 application”), as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1005             |
| 1006               | U.S. Patent No. 7,412,294, as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1006                                                                                   |
| 1007               | Excerpts from file history of U.S. Application No. 12/144,729, filed July 12, 2008 (“the 2008 application”), as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1007 |
| 1008               | Comparison of the 2003 application as-filed with the 2001 application as-filed, as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1008                              |
| 1009               | Comparison of figures from the 2003 and 2001 applications as-filed, as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1009                                          |
| 1010               | Comparison of the ’294 patent with the as-filed 2003 application, as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638 as Exhibit 1010                                            |
| 1011               | Comparison of the 2008 application as-filed with the 2018                                                                                                                                                |

| Exhibit No. | Description                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | application as-filed                                                                                                                                                                                |
| 1012        | Declaration of Michael Davies                                                                                                                                                                       |
| 1013        | <i>One-E-Way, Inc. v. Apple Inc.</i> , No. 2:20-cv-06339, Dkt. 86 (C.D. Cal. Mar. 9, 2022) (“Apple Markman order”)                                                                                  |
| 1014        | <i>In the Matter of Certain Consumer Elecs. And Display Devices with Graphics Processing and Graphics Processing Units Therein</i> , 337-TA-943, Order 12 (ITC July 24, 2015) (“ITC Markman order”) |
| 1015        | U.S. Patent No. 6,744,808 (“Walley”)                                                                                                                                                                |
| 1016        | U.S. Patent No. 5,546,424 (“Miyake”)                                                                                                                                                                |
| 1017        | Reserved                                                                                                                                                                                            |
| 1018        | “Wireless Communications: Principles & Practice” by Theodore S. Rappaport (1996) (“Rappaport”)                                                                                                      |
| 1019        | Reserved                                                                                                                                                                                            |
| 1020        | Reserved                                                                                                                                                                                            |
| 1021        | U.S. Patent No. 6,256,303 (“Drakoulis”)                                                                                                                                                             |
| 1022        | “The Communications Handbook” (1997) by Jerry D. Gibson (“Gibson”)                                                                                                                                  |
| 1023        | One-E-Way’s Opening Claim Construction Brief<br><i>One-E-Way, Inc. v. Apple Inc.</i> , 2:20-cv-6339-JSK-PD (D.I. 65) (C.D. Cal. Dec. 6, 2021)                                                       |
| 1024        | Order Re Motion For Summary Judgment of Non-Infringement (“Apple Summary Judgment Order”)<br><i>One-E-Way, Inc. v. Apple Inc.</i> , 2:20-cv-6339-JSK-PD (D.I. 102) (C.D. Cal. June 15, 2022)        |
| 1025        | Library of Congress Record for “Wireless Communications:                                                                                                                                            |

| Exhibit No. | Description                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|
|             | Principles & Practice” by Theodore S. Rappaport (1996)                                                                              |
| 1026        | U.S. Patent No. 5,933,421                                                                                                           |
| 1027        | Library of Congress Record for “The Communications Handbook” (1997)                                                                 |
| 1028        | U.S. Patent No. 5,953,669                                                                                                           |
| 1029        | Opinion Affirming <i>Apple</i> Summary Judgment Order<br><i>One-E-Way, Inc. v. Apple Inc.</i> , 2022-2020 (D.I. 32) (Aug. 14, 2023) |
| 1030        | <i>Curriculum Vitae</i> , Michael Allan Martin Davies                                                                               |
| 1031        | Reserved                                                                                                                            |
| 1032        | Declaration of Joseph C. McAlexander, as originally filed in <i>Apple Inc. v. One-E-Way, Inc.</i> , IPR2021-00284 as Exhibit 2001   |
| 1033        | Declaration of Joseph C. McAlexander, as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01639 as Exhibit 2007   |
| 1034        | Deposition of Dr. Jose Luis Melendez, August 20, 2026                                                                               |
| 1035        | Supplemental Declaration of Michael Allan Martin Davies                                                                             |
| 1036        | Oral Argument Transcript, as originally filed in <i>Sony Corp. v. One-E-Way, Inc.</i> , IPR2016-01638/-01639 as Paper 38            |

## I. INTRODUCTION

Samsung Electronics Co., Ltd. (“Petitioner”) hereby replies in support of its Petition for *inter partes* review of claims 1-20 of U.S. Patent No. 10,468,047 (“the ’047 patent”).

For Grounds 1 and 2, One-E-Way Inc.’s (“PO”) Response (“POR”) rests on nonprecedential dicta and examiner silence. Its fallback—that the 2003 application inherently discloses direct conversion, DPSK, and reduced intersymbol interference (“ISI”)—is contradicted by PO’s prior expert, who told this Board that neither direct conversion nor DPSK is “necessary to make or operate” a low-cost, battery-powered 2.4 GHz spread-spectrum wireless audio headphone system, and that a POSA “would not understand ‘error correction encoding’ ... to refer to encoding to address intersymbol interference.” PO’s current expert concedes that the 2003 application’s disclosure of “Manchester coding” is at best “*akin*” to the claimed “DPSK.”

For Grounds 3-5, PO argues that neither Miyake nor Walley teaches “independent code division multiple access communication” if construed as “performed independent of any central control.” This argument attacks a strawman. Petitioner does not import Miyake’s entire centralized architecture into Walley; Petitioner uses Miyake’s teaching of user-specific spreading codes to modify Walley’s system-based codes, yielding a one-to-one transmitter-receiver pairing that requires no central control. PO’s argument that the combination would require

central control mischaracterizes the combination and ignores the plain teachings of the references.

For the reasons below, and as further supported by the Second Declaration of Michael Davies (EX1035), the Board should find claims 1-20 unpatentable.

## **II. THE '047 PATENT CLAIMS ARE NOT ENTITLED TO A 2001 PRIORITY DATE**

PO does not dispute the critical facts underlying the priority-date analysis: the 2003 CIP application as filed disclosed neither a “direct conversion module,” “differential phase shift keying (DPSK),” nor “intersymbol interference,” and did not incorporate the 2001 application by reference (POR, 12, 22; Petition, 24-25); the 2001 application was expressly abandoned on August 27, 2003—one day after the 2003 CIP application was filed—and was not co-pending with it in 2006, when the incorporation by reference was added (Petition, 21-22, 26); and if the challenged claims are not entitled to a 2001 priority date, the '196 Publication renders them obvious under Grounds 1 and 2.

The priority-date question thus turns on whether PO may cure the 2003 application's missing disclosure through post-filing amendments. POR, 23-35. It cannot. 35 U.S.C. §132 and binding Federal Circuit precedent foreclose PO's argument.

“No amendment shall introduce new matter into the disclosure of the invention.” 35 U.S.C. §132(a). The Federal Circuit has consistently applied this

prohibition to require that the written description supporting a claim be present in the application as originally filed. *Anascape, Ltd. v. Nintendo of Am. Inc.*, 601 F.3d 1333, 1337 (Fed. Cir. 2010) (text “not present in the original ... specification ... cannot contribute written description support”); *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008) (“matter must necessarily be present in the [original] application’s specification”). When an intervening application in the priority chain fails to comply with §112 as filed the chain of continuity is broken. *Zenon Env’t, Inc. v. U.S. Filter Corp.*, 506 F.3d 1370, 1378-82 (Fed. Cir. 2007). The Board addressed this issue in IPR2016-01638, involving a related patent in the same family, instituting review because Sony had “shown sufficiently that the [2003] application failed to maintain continuity of disclosure with the [2001] application.” Petition, 17-18 (citing Sony IPR, Paper 12 at 12-13, 17). That analysis applies here. The Board’s analysis in the Sony IPR—rejecting Patent Owner’s same priority argument—is directly applicable here.

PO attempts to manufacture an exception based on a handful of decisions—most of which are nonprecedential—that supposedly permits amending a pending CIP to add material from a parent application. POR, 23-35. No such exception exists.

PO bears the burden of proving entitlement to an earlier application’s filing date. *In re NTP, Inc.*, 654 F.3d 1268, 1276-77 (Fed. Cir. 2011). None of PO’s cited authorities support this proposition, and adopting PO’s proposed exception would

eviscerate the statutory prohibition on new matter.

**A. PO's Reliance on *In re Reiffin* Is Misplaced**

PO's principal authority, *In re Reiffin*, 340 F. App'x 651 (Fed. Cir. 2009) (POR, 24-27), does not help it. *Reiffin* is nonprecedential and cannot bind the Board. Fed. Cir. R. 32.1. The language PO quotes is also *dicta*: *Reiffin* rejected the patentee's attempt to add parent-application material during reexamination as new matter under Section 251, 340 F. App'x at 659, so the Court's aside about what the patentee hypothetically could have done during original prosecution was unnecessary to the outcome—and the Court never reconciled that aside with Section 132. The facts differ as well. In *Reiffin*, the parent remained co-pending and issued the same day, *id.* at 653, so the applicant could have cured the defect by filing a new application. Here, the 2001 application was expressly abandoned on August 27, 2003—one day after the 2003 CIP application was filed. EX1005, 0001-02. *Reiffin*'s theoretical remedy—that “an applicant is free to add matter from earlier related applications in a chain of *co-pending applications*” (340 F. App'x at 659<sup>1</sup>)—was therefore unavailable to PO.

**B. *Litton* and the Other Cases Cited by PO Do Not Support PO's Position**

PO leans on *Reiffin*'s citation of *Litton Sys., Inc. v. Whirlpool Corp.*, 728 F.2d

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<sup>1</sup> All emphasis added unless otherwise noted.

1423 (Fed. Cir. 1984). POR, 27-29. *Litton* holds only that matter added by amendment to a CIP takes the parent’s filing date if it is inherent in the parent’s disclosure. 728 F.2d at 1438. But the *Litton* CIP was filed containing the parent’s entire disclosure, *id.* at 1435, and the added terms—“self-supporting” and “shatterproof”—were measured against that common disclosure. *Litton* never considered whether new matter may be added to a child application that omitted the parent’s relevant disclosure altogether.

PO’s remaining cases fail for the same reason: none involves a CIP filed without the parent disclosure and later amended—after the parent’s abandonment—to add the parent’s material.

### **C. The CIP Priority Claim Is Not an Incorporation by Reference**

PO suggests that the 2003 application’s priority claim to the 2001 application, standing alone, provides continuity of disclosure. POR, 22. PO’s argument is contrary to binding precedent, which establishes that a CIP priority claim is not an incorporation by reference of the parent application. *In re De Seversky*, 474 F.2d 671, 674 (C.C.P.A. 1973) (a §120 statement calling an application a “continuation-in-part” does not itself incorporate the patent by reference); MPEP §201.06(c)(IV).<sup>2</sup>

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<sup>2</sup> PO contends that Section 201.06(c)(IV) is inapplicable as it is purportedly limited to divisionals. POR, 33 n.8. The cited material from Section 201.06(c)(IV) is repeated throughout the MPEP, including in Section 201.11 (“Continuity Between Applications”) at the time the 2003 Application was filed: “An incorporation by reference statement added after an application’s filing date is not effective because

But Section 120 “contains no magical disclosure-augmenting powers able to pierce new matter barriers.” *Dart Indus. v. Banner*, 636 F.2d 684, 688 (D.C. Cir. 1980).

#### **D. The Examiners’ Actions Are Entitled to No Deference**

PO argues that the Examiners’ failure to reject the applicant’s amendments as new matter is entitled to “an especially weighty presumption of correctness.” POR, 13, 22-23 (citing *Commonwealth Sci. & Indus. Rsch. Organisation v. Buffalo Tech. (USA), Inc.*, 542 F.3d 1363 (Fed. Cir. 2008); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555 (Fed. Cir. 1992)). Not so.

PO’s cases tie this “presumption” to the Section 282 “presumption of validity.” *Commonwealth*, 542 F.3d at 1380 (tying the “new matter” challenge to the “presumption of validity based on the PTO’s issuance ... despite the amendments”); *Brooktree*, 977 F.2d at 1574-75 (same). That presumption does not apply in an IPR. *Celgene Corp. v. Peter*, 931 F.3d 1342, 1362 (Fed. Cir. 2019); 35 U.S.C. §316(e).

To the extent an examiner’s findings receive deference, it extends to issues of fact, not questions of law. *NTP*, 654 F.3d at 1273. The priority-date question here is one of law. *Hollmer v. Harari*, 681 F.3d 1351, 1355 (Fed. Cir. 2012) (“Whether the intervening patents in a chain of priority maintain the requisite continuity of disclosure is a question of law we review de novo.”). The examiners appear to have

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no new matter can be added to an application after its filing date (see 35 U.S.C. 132(a)).” MPEP 201.11 (Rev. 1, Feb. 2003).

assumed that the 2003 application incorporated the 2001 application by reference, and on that basis allowed the applicant to add new matter. That legal error is not entitled to deference.

**E. The 2003 Application As Filed Does Not Support the Challenged Claims**

PO argues in the alternative that even if the 2003 application must support the challenged claims, it does so through inherent disclosure. POR, 35-44. This argument fails.

“To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). “Inherency ... may not be established by probabilities or possibilities.” *PAR Pharm., Inc. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1194-95 (Fed. Cir. 2014); *Novartis Pharms. Corp. v. Accord Healthcare, Inc.*, 38 F.4th 1013, 1017 n.2 (Fed. Cir. 2022) (“implicit disclosure ... cannot ... satisfy the written description requirement”).

PO’s inherency arguments rest on attorney argument about documents its expert never considered and testimony that parrots the POR and contradicts PO’s prior expert. PO cannot meet the exacting standard for inherency for any of the three elements below.

*1. DPSK Was Not Inherently Disclosed by “Manchester*

*Encoding”*

PO contends that the 2003 application’s reference to “Manchester encoding/decoding schemes” (EX1005 at 0007) inherently discloses Differential Manchester encoding, and then contends that Differential Manchester encoding inherently discloses DPSK. POR, 39-41.

PO cites the declaration of Dr. Jose Melendez (“Melendez”) to assert “that there are many types of Manchester encoding schemes including Differential Manchester encoding.” POR, 39 (citing EX2022, ¶36). But Melendez’s testimony on this point should not be given any weight as he merely parrots the words in the POR and provides no basis for this opinion. *See Giesecke+Devrient GmbH v. Lumenco, LLC*, IPR2024-00838, Paper 31 at 21 (testimony that “merely repeats [PO’s] allegations nearly verbatim” is “entitled to little weight”) (citing *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15-17 (PTAB Aug. 24, 2022) (precedential)); 37 C.F.R. §42.65(a). Thus, PO has failed to demonstrate that disclosure of the alleged genus inherently discloses “Differential Manchester.” *Seagen Inc. v. Daiichi Sankyo Co., Ltd.*, 160 F.4th 1322, 1330 (Fed. Cir. 2025) (disclosing a “broad genus,” without more, does not support claims to a “particular subgenus or species contained therein.””).

PO additionally cites as support EX2015 and EX2018. POR, 39. These documents were never considered by Melendez, and thus PO’s unsupported attorney

argument regarding these documents should be excluded. *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1035, 1043 (Fed. Cir. 2017) (“[a]ttorney argument is not evidence” and cannot be used to rebut other admitted evidence); *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1342 (Fed. Cir. 2020). In any event, EX2015 refers to “differential Manchester encoding” as “[a]nother encoding technique” (i.e., a *different* technique) as compared to “Manchester encoding,” and thus contradicts the contention that “Differential Manchester” is inherently disclosed by “Manchester encoding/decoding schemes.” EX2015, 292.

Even if Differential Manchester were inherently disclosed in the 2003 application, PO concedes that it is *different* from DPSK as PO contends it is only “*akin* to DPSK” in view of Melendez’s testimony, who similarly opines that they are “logically and functionally analogous.” POR, 40; EX2022 ¶¶36. But even if that were true, the disclosure of a similar concept is not sufficient to show that *DPSK* is inherently disclosed. *Idenix Pharms. LLC v. Gilead Scis. Inc.*, 941 F.3d 1149, 1165 (Fed. Cir. 2019) (“‘A description that merely renders the invention obvious does not satisfy’ the written description requirement.”). PO’s two logical leaps cannot be reconciled with its previous expert’s argument that a reference which makes *an express* disclosure of DPSK was insufficient to even “suggest” its use, and that two differential shift keying techniques (DPSK and DFSK) are *distinct* from each other. EX1033, ¶¶9-18.

Manchester encoding is a line coding technique that operates on the digital bitstream at baseband. DPSK, by contrast, is a modulation technique that operates on a carrier wave. EX1035, ¶¶36, 40. The two serve different functions and are not interchangeable. EX1035, ¶¶34-37. A POSA reading “Manchester encoding” in the 2003 application would not have understood the applicant to be describing DPSK modulation. EX1035, ¶¶38-39.

## *2. Direct Conversion Was Not Inherently Disclosed*

PO argues that “direct conversion module” was inherently disclosed because “the alternative superheterodyne receiver” was purportedly unsuitable, and “direct conversion” receivers were beneficial to a low cost, battery-powered audio system. POR, 37-39.

PO relies on Melendez’s testimony that a “direct conversion receiver” is a “necessity” in “Mr. Woolfork’s invention.” POR, 37. But the test is not whether “direct conversion” is a necessity in “Mr. Woolfork’s invention”—it’s whether “the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *Robertson*, 169 F.3d at 745.

Here, the thing described is a “battery powered transmitter,” a “battery powered receiver” and a signal “received by receiving antenna 52 and then demodulated.” EX2022, ¶34 (citing EX1005 at 0005 (¶¶0009-10)). But Melendez

concedes that “wireless headphones” before 2001 did not “necessarily” include a direct conversion module. EX1034, 102:15-103:11. PO’s prior expert opined that a Bluetooth reference expressly disclosing a homodyne receiver—which PO concedes is a direct conversion receiver (POR, 38)—did not disclose a Bluetooth headphone including such a receiver, and that a homodyne receiver was “not necessary to make or operate either the invention in the ’892 patent or a system implementing the 1998 Bluetooth.” EX1033, ¶¶3, 24-35.<sup>3</sup>

Melendez further calls a “direct conversion receiver” a “natural choice ... as it is less expensive and advantaged, requiring less components and complexity.” EX2022, ¶34. A “natural choice” falls short of the high standard for showing that the “direct conversion module” was “necessarily present in the thing described in the reference.” *See Robertson*, 169 F.3d at 745. By conceding that other choices were possible for wireless headphones, PO concedes that the “direct conversion module” is not necessarily present. Additionally, Melendez did not tie his “less expensive” requirement to anything in the 2003 application (EX2022, ¶¶34-35), and thus, any cost benefit would, at best, make the use of a direct conversion receiver obvious as opposed to a necessarily present requirement.

PO further cites Melendez’s testimony to argue that a “POSA would also

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<sup>3</sup> PO argued that the express disclosure of a homodyne receiver, with “no express linking language connecting it to being used by any type of system,” was insufficient. EX1036, 35-37.

understand, from the disclosure in the 2003 application that ‘the digital modulated signal from transmit antenna 24 may be received by receiving antenna 52 and then demodulated,’ ... would involve down converting the RF carrier signal to baseband or very near baseband.” POR, 37 (citing EX2022, ¶35). But Melendez’s testimony on this point warrants no weight for the reasons stated in §II.E.1.

The 2001 application expressly discloses “direct conversion receiver 56.” EX1004, ¶[0015]. The 2003 application’s silence cannot be excused as inherent disclosure of a specific receiver architecture that was one of several commercially viable options in 2003.

### *3. Reduced Intersymbol Interference Was Not Inherently Disclosed*

PO argues that the 2003 application’s reference to “convolutional encoding” and “interleaving” for reducing “the effects of channel noise” (EX1005 at 0005) and disclosure of “convolutional error detection and correction techniques” inherently discloses reduction of intersymbol interference (“ISI”). POR, 41-44. This conflates three distinct signal impairments, and contradicts PO’s previous arguments before the Board.

PO cites the testimony of Melendez, who opines that “interleaving” is used to reduce the effects of “fading.” POR, 43; EX2022, ¶¶38-40. But Melendez concedes that “fading” and “ISI” are not synonyms and has no opinion as to whether “fading” results in ISI. EX1034, 129:8-130:7, 131:14-25. The disclosure of a technique for

reducing one channel impairment does not make inherent the reduction of a different channel impairment.

PO also argues that “partial-response signaling (PRS)” is a technique which reduces ISI and uses “convolutional encoding.” POR, 42. But the 2003 Application does not refer to PRS, and Melendez concedes that “convolutional encoding” is not solely used by PRS. EX1034, 133:3-6. Thus, the fact that “convolutional encoding” *could* be used by PRS does not mean convolutional encoding’s disclosure inherently discloses the reduction of ISI. PO also cites EX2019, which states that “convolutional coding” is a type of “error correction coding.” POR, 42. However, PO’s prior expert opined that disclosure of “error correction coding” would not teach reduction of ISI as ISI “relates to interference caused by the signal itself,” and contrasted that to “channel impairments broadly, including switching noise, burst noise, jamming, fading, multipath as well as interference of numerous types.” EX1032, ¶¶12-13. PO cannot now contend that “convolutional error detection and correction techniques” inherently discloses reduction of ISI in view of its own expert’s conflicting testimony.

PO further cites Melendez’s declaration to argue that a “POSA would know that the modulated signal is coded for private reception and that would be understood to, at least, remove multiple copies of signal interference from transmitters.” POR, 43 (citing EX2022, ¶38). But Melendez’s testimony on this point warrants no weight

for the reasons stated in §II.E.1.

PO further argues that the 2003 Application discloses the use of “time hopping spread spectrum (THSS)” based on the Examiner’s withdrawal of a Section 112 rejection. POR, 43, n.12. But the withdrawal rested on “Applicant’s arguments, filed 07 March 2007” (EX1005, 702), which relied on the express disclosure of CDMA *in the parent application*. See EX1005, 633-36 (relying on paragraphs 14-16 “of the parent application”). Melendez concedes that the 2003 application did not refer to time hopping. EX1034, 133:9-136:7.

Moreover, the 2001 application again shows the applicant knew how to disclose ISI reduction when intended: “encoder 36 may be used to reduce intersymbol interference (ISI) by using a transform code to encode the digital signal.” EX1004, ¶[0013]. The failure to expressly or inherently disclose the same in the 2003 application creates a break in disclosure in the chain of applications.

### **III. PO MISCHARACTERIZES PETITIONER’S CASES**

PO argues that written description compliance should be judged “as of the filing date sought”—namely, December 21, 2001. POR, 14-17. That misreads *Anascape*, *Ariad*, and *Vas-cath*. In *Vas-cath*, the Court held that, if an applicant “seek[s] the benefit of the filing date of an earlier-filed ... application,” then written description must be present in the earlier-filed application. *Vas-cath Inc. v. Mahurkar*, 935 F.2d 1555, 1560, 1563-64 (Fed. Cir. 1991). *Vas-cath* does not

address the written description requirements where priority is claimed through a chain of applications, as here.

PO conflates *when* possession is measured (the date sought) with *where* it must appear (the application whose date is sought and every intervening application).<sup>4</sup> Under Section 120, “each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. §112.” *Arthrex, Inc. v. Smith & Nephew, Inc.*, 35 F.4th 1328, 1343 (Fed. Cir. 2022) (quoting *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1571 (Fed. Cir. 1997)); *Anascope*, 601 F.3d at 1337; *see also* MPEP §2163.05. The operative test is therefore whether the 2003 application as filed supports the Challenged Claims. It does not. Petition, 24-25.

#### **IV. GROUND 3 RENDERS THE CHALLENGED CLAIMS UNPATENTABLE**

##### **A. PO Must Show Miyake and Walley Require Central Control**

The parties agree “independent” CDMA means CDMA “performed independent of any central control.” EX1013, 8. That is a negative limitation, and “prior art references need not state a feature’s absence in order to disclose a negative limitation.” *Li v. Apple Inc.*, 2025 WL 1618217, at \*2 (Fed. Cir. June 9, 2025), *cert.*

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<sup>4</sup> PO recited the correct standard during the oral argument in IPR2016-01638. EX1036, 45-46 (“The first is the establishment of written description support as of the filing date sought and once we have that established, we also must make sure that there’s a continuity of disclosure along the chain of applications up to the present application”).

*denied*, 146 S. Ct. 838 (2025) (internal quotes omitted). Prior art can meet a negative limitation through silence if the reference does not require that feature. *Süd-Chemie, Inc. v. Multisorb Techs., Inc.*, 554 F.3d 1001, 1004–05 (Fed. Cir. 2009) (reference disclosed “uncoated” film where it did not describe the film as coated and did not suggest necessity of coatings). PO inverts the inquiry, asking the Board to read a central-control requirement into two references that never mention one.

Melendez confirmed that Walley never refers to “central control,” never states that a “central controller” must assign codes, and never states that “central control” is required for operation. EX1034, 210:6-212:7; 237:16-238:22. Melendez concedes that Walley is “silent on how PN codes are assigned and how orthogonality would be maintained.” *Id.*, 238:18-22; *see also id.* at 210:6-212:7.

Similarly, Miyake does not contain the following terms: “base station,” “central control,” “central controller,” “centralized,” “central authority,” “centralized database,” “central station,” “TDMA,” “time division multiple access,” “time slot,” “power control,” or “closed loop.” *Id.*, 161:11-166:14. Melendez conceded that “base station” is his characterization of Miyake’s “transmission station.” *Id.*, 167:20-168:24. Thus, both references are expressly silent regarding “central control.”

## **B. PO’s “Independent” CDMA Arguments Are Refuted By Its Own Experts’ Testimony**

PO’s arguments are premised on two alleged requirements (CDMA requires

orthogonality, and orthogonality requires a central assignor), which PO ascribes to Miyake and Walley to conclude that they require central control. POR, 46-60. Both assertions were refuted by PO's own record.

PO's prior expert opined that CDMA did *not* require orthogonality, stating, "sharing time (synchronous) and *maintaining orthogonality refer to specific sub-species of CDMA* ... and do not refer to attributes common to all CDMA. ... For example, CDMA can be asynchronous (transmissions not time-synchronized) or non-orthogonal (code cross-correlations greater than zero)." EX1032, ¶9. Melendez concedes that he had never seen PO's prior expert's declaration, and concedes CDMA systems which did not require orthogonality existed. EX1034, 147:22-148:14, 150:1-3; 152:10-14.

Melendez also admits that spreading codes "could be assigned and the orthogonality can be maintained centrally or not." *Id.*, 154:7-13. Asked whether a system in which orthogonality is not maintained centrally is independent of central control, he answered: "I think that's fair." *Id.*, 154:14-18. He also agreed that "[i]ndependent CDMA is a form of CDMA"—i.e., CDMA does not require central control. *Id.*, 160:9-12. And he agreed the presence of a base station does not resolve the question as "[i]t depends on what the base station is doing." *Id.*, 145:9-146:3.

Melendez further confirmed he never considered any alternatives to central control for maintaining orthogonality, including device-selected codes, codes

preassigned by a base station with no further role, and manufacturer-assigned codes. *Id.*, 147:5-13; 168:25-169:21; 238:23-241:20.

### **C. Miyake Discloses Peer Stations and User-Set Codes**

Miyake affirmatively describes the architecture PO says is absent. The passage cited in the Petition requires that “the spreading code set on the transmitter side should coincide with the spreading code set on the receiver side,” and that “those spreading codes should differ from those for the other channel users.” EX1016, 6:63-7:18; Petition, 64.

PO discounts this excerpt based on its presumption that Miyake’s “transmission station” is actually a “base station” that is “centrally controlled for the proper functioning of all of its users’ receivers.” POR, 48-50 (citing EX2022, ¶50 (repeating the same)). But as explained in §IV.A, Miyake does not recite any of the terms that POR and Melendez associate with Miyake, including “base station,” “central control,” or “TDMA.”

Despite asserting that Miyake requires central control (EX2022, ¶¶46-54), Melendez concedes that he did not consider the entirety of Miyake and did not consider portions that were not expressly cited in the Petition or the Davies Declaration, such as claim 1 and the portions of the specification relating to Figure 9 of Miyake. *See, e.g.*, EX1034, 183:9-20, 187:17-25, 189:7-191:21.

For example, Miyake states that “*each of stations of the transmitter side and*

*receiver side may comprise both of a transmission circuit* (modulator) *and a reception circuit* (demodulator).” EX1016, 9:13-17. Miyake thus discloses symmetric, peer stations, not a base station serving terminal. EX1035, ¶71.

Miyake follows this excerpt with a description of its FIG. 9 embodiment, which comprises both a transmission circuit (modulator) and a reception circuit 82 (demodulator) and further includes a control section, key input section, display device, memory, microphone, and loudspeaker. EX1016, 9:20-47. A POSA would recognize that as a handheld user terminal. EX1035, ¶72. Although Melendez insisted that it “sounds like a base station” as base stations can have microphones and loudspeakers (EX1034, 185:13-186:7), he conceded he had never analyzed whether the Figure 9 embodiment can be the “transmission station” of Miyake's claim 1, and had no opinion on whether two such stations would communicate. EX1034, 186:8-191:21. Thus, Melendez's opinion that Miyake *requires* central control is fatally flawed as he failed to consider the entirety of the reference.

Miyake further discloses embodiments which allow a user to select the code for the user's device. For example, Miyake discloses switching circuits 62E and 64F, which select among the attribute-oriented spreading code generators “in accordance with an operation of an external manual switch” 63 or 65. EX1016, 8:12-60. Specifically, Miyake explains that “attribute oriented codes to be supplied to the mixer 48 of FIG. 4 can be switched by operating the manual switch 63 or 65.

Therefore, when a plurality of transmission stations are broadcasting different information programs, it is possible for *the user* to select and receive any of these programs.” *Id.*, 8:54-60. Melendez concedes that this embodiment’s operative orthogonal code would be “a combination of the attribute code together with the user code. That’s the essence of the invention.” EX1034, 198:12-200:25. A system in which the user manually sets a component of the operative spreading code is not one in which CDMA is performed by central control. EX1035, ¶73.

**D. Walley Affirmatively Discloses Handset-Initiated Code Control**

Walley likewise discloses distributed control. In Walley’s first embodiment, “[t]he portable telephone unit can then signal the base unit that it will switch to an eight-bit spreading code,” EX1015, 10:48-51, and later “signals the base unit that it will switch off the spreading code.” *Id.*, 10:64-66. In Walley’s PDA embodiment, “[t]he PDA 1001 could then instruct the base unit 1011 as to which PN code is the minimum size needed to accurately receive the messages.” *Id.*, 12:5-12. Melendez confirmed the operation of each passage (EX1034, 225:22-233:7; 236:15-236:22) and further conceded that Walley’s “base unit” is “definitely not a base station that assigns unique PN codes to anything,” and is “not the base unit that’s alleged to assign codes and manage orthogonality.” *Id.*, 235:13-235:21; 232:23-233:7. Walley’s transmit controller 805 adjusts code length using inputs local to the device — queue length, data receive rate, interference level, signal strength. EX1015, Fig.

8, 8:62-9:12. Thus, Walley likewise discloses distributed control, in which a *handset* selects the spreading code that its corresponding base unit will use. EX1035, ¶78.

#### **E. PO's Orthogonality-Collapse Theory Is Extrinsic**

PO concedes that “Walley is silent on the mechanism by which orthogonality is preserved.” POR, 57. Thus, PO creates a strawman, and speculates that Walley’s system would use OVSF code trees and parent-child code relationships to argue that it requires centralized control. POR, 57-58; EX2022 ¶¶57-58. But Melendez concedes that neither “orthogonal variable spreading factor” nor “code tree” appears in Walley. EX1034, 245:8-11; 250:10-16. Nor is a code tree required to vary code length while preserving separability. EX1035, ¶79. Petitioner’s combination does not depend on maintaining orthogonality across arbitrarily varying lengths: Miyake supplies fixed-length, user-specific codes, and PO does not contend Miyake’s codes lose orthogonality.

PO’s TDMA argument is also unavailing. PO relies on Miyake’s statement under “**Description of the Related Art**” that users “perform communication while sharing one wide frequency band on a time and spatial basis.” POR, 55; EX2022 ¶53 (citing EX1016, 1:13-14). But Melendez concedes that sentence as well as the second excerpt he cites—PO’s power-control passage (POR, 55; EX2022 ¶54 (citing EX1016, 4:1-11))—contains no reference to time slots, and Melendez disavowed his own opinions regarding the same: “I’m not sure, frankly, I understand my own words

there. ... it's *confusing* even to me.” EX1034, 204:3-206:19, 208:1-17. Thus, Paragraphs 53-54 of his declaration warrant no weight. 37 C.F.R. §42.65(a).

#### **F. The Institution Denials Based on *Ham* Do Not Assist PO**

PO argues that the institution denials in IPR2021-00284 and -00285 confirm that Miyake teaches central control. POR 6, 45 n.13. But those decisions turned on Ham's express statement that its “code division method ... maintains orthogonality with a unique code assigned to it.” IPR2021-00284, Paper 6 at 28. PO's prior expert explained that this statement implied central control because, “orthogonality can *only* be maintained by providing each user device with a spreading code known to be orthogonal to each spreading code being used by another user device,” which “would require centralized control.” EX1032, ¶¶14-16. But as explained above, Melendez concedes that Miyake and Walley contain no comparable statement. *See supra*, §IV.A. The predicate for the *Ham* denials is thus absent.

#### **G. Motivation to Combine Is Well-Supported**

PO argues that a POSA would not have been motivated to combine Walley and Miyake because they solve “different problems.” POR, 60-63. This argument does not defeat obviousness.

“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S.

398, 417 (2007). The combination here represents a simple substitution of one known element (Walley’s system-based spreading code) for another (Miyake’s user-specific spreading code) to obtain predictable results (a user-specific spreading code). Petition, 51-52; Ex. 1012 ¶¶197-199.

PO’s argument that the references address “different problems under conflicting design constraints” (POR, 61-62) reflects a misapplication of the motivation-to-combine standard. *KSR* does not require the references to solve the same problem or share design constraints. PO’s incompatibility argument presumes bodily incorporation (POR, 60), which the law does not require. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *In re Mouttet*, 686 F.3d 1322, 1332-34 (Fed. Cir. 2012).

PO’s teaching-away theory rests on a central controller “requirement” that Melendez conceded Walley never states. POR, 62-63; EX1034, 210:6-212:24; 237:22-238:22. But silence cannot teach away. “A reference that ‘merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into’ the claimed invention does not teach away.” *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017).

#### **H. Dependent Claims 2 and 9 Are Rendered Obvious**

PO argues that claims 2 and 9 require both DPSK and non-DPSK demodulations to be performed on the same received transmission. POR, 63-65. This misreads the claim language.

Claims 2 and 9 recite that the audio receiver is “further *configured to* perform said plurality of demodulations on the at least one of said received wireless modulation transmissions.” Ex. 1001, 5:28-32, 6:8-12. It does not require that both demodulations be performed simultaneously on the same signal. A receiver configured with both DPSK and non-DPSK demodulators meets the limitation. Petition, 67-68; Ex. 1012 ¶¶146-148, 259-261.

Melendez’s assertion that M-ary QAM requires a coherent reference signal (Ex. 2022, ¶69) does not defeat the obviousness showing. A POSA would have found it obvious to configure a receiver with both DPSK and M-ary QAM demodulators to accommodate different transmissions or transmission conditions. EX1035, ¶¶84-89. Rappaport teaches that DPSK “avoids the need for a coherent reference signal at the receiver” (Ex. 1018, 242)—meaning a receiver can readily be configured with both a coherent (QAM) and a non-coherent (DPSK) demodulator. EX1035, ¶83, 85.

PO’s assertion that Petitioner conflated M-ary and M-ary QAM (POR, 65 n.17) is wrong. Petitioner’s mapping identifies M-ary QAM specifically as the non-DPSK option. Petition, 66-67 (citing EX1018, 270-72). EX1035, ¶¶82-90.

#### **I. Claim 17’s Preamble Is Met**

PO argues that Petitioner’s mapping in Grounds 3-5 does not address the claim 17 preamble language requiring a “transmitter configured to transmit a unique user

code.” POR, 65-66. This is incorrect.

In a spread spectrum system, the transmitter necessarily transmits the spreading code embedded in the modulated signal. EX1035, ¶94. Miyake confirms this, requiring that “the spreading code set on the transmitter side should coincide with the spreading code set on the receiver side.” EX1016, 6:63-7:18. Petitioner’s mapping of the unique user code to Walley’s spreading code combined with Miyake’s user-specific code (Petition, 71) therefore expressly or inherently discloses transmission of that code.

#### **V. Grounds 4 And 5 Follow Ground 3**

PO’s arguments against Grounds 4 and 5 depend entirely on its failed Ground 3 arguments. POR, 65-67. Because PO does not separately challenge the Drakoulis teachings, those grounds succeed for the reasons stated with respect to Ground 3.

#### **VI. Ground 2 Follows Ground 1**

PO’s arguments against Ground 2 depend entirely on the failed priority-date argument. POR, 44. Because the ’196 Publication is prior art to the challenged claims, and because PO does not separately challenge the Rappaport teachings regarding power supplies, Ground 2 succeeds for the reasons stated in the Petition.

#### **VII. Conclusion**

For the foregoing reasons, and the reasons stated in the Petition, Petitioner

respectfully requests that the Board find claims 1-20 of the '047 patent unpatentable.

Dated: August 27, 2026

Respectfully Submitted,

/Trenton A. Ward/

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## **CERTIFICATE OF COMPLIANCE**

This Reply complies with the word count limits set forth in 37 C.F.R. §42.24(c)(1), effective May 2, 2016, because this Reply contains less than 5,600 words, excluding the parts of the Reply exempted by 37 C.F.R. §42.24(a), as determined using the word count provided by Microsoft Word, which was used to prepare this Reply.

Dated: August 27, 2026

Respectfully Submitted,

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## **CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), the undersigned certifies that on August 27, 2026, I caused a true and correct copy of PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE and Exhibits 1032-1036 to be served by electronic means upon the foregoing individuals:

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