

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

ENTROPIC COMMUNICATIONS, LLC,
Patent Owner.

Case IPR2024-00452
Patent 7,889,759

**PETITIONER'S REQUEST FOR DIRECTOR REVIEW OF DECISION
DENYING INSTITUTION**

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EXHIBITS (FILED WITH PETITION)

- Ex. 1001: U.S. Patent No. 7,889,759 (“the ’759 patent”), with Certificate of Correction
- Ex. 1002: Expert Declaration of James Bertonis
- Ex. 1003: [Reserved]
- Ex. 1004: Certified Prosecution History of the ’759 patent
- Ex. 1005: Abandoned U.S. Application Serial No. 10/778,505 (co-parent of ’759 patent)
- Ex. 1006: U.S. Patent No. 7,295,518 (co-parent of ’759 patent)
- Ex. 1007: U.S. Pub. No. 2002/0166124 (“Gurantz”)
- Ex. 1008: [Reserved]
- Ex. 1009: U.S. Patent No. 5,682,419 (“Grube”)
- Ex. 1010: U.S. Pub. No. 2002/0056066 (“Gesbert”)
- Ex. 1011: U.S. Patent No. 7,418,043 (“Shattil”)
- Ex. 1012: Ciciora, Walter S. *Modern Cable Television Technology: Video, Voice, and Data Communications*. San Francisco, Calif: Morgan Kaufmann Publishers, 1999, Sections 4.1-4.3.3 (Chapter 4, pp. 161-192)
- Ex. 1013: EP 1087586 (“Mirfakhraei”)
- Ex. 1014: U.S. Pub. No. 2009/0279498 (“Li”)
- Ex. 1015: U.S. Pub. No. 2009/0323851 (“Ling”)
- Ex. 1016: U.S. Pub. No. 2005/00310444 (“Gesbert II”)

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Other Authorities

USPTO, Revised Interim Director Review Process, Sec. 2.B., https://www.uspto.gov/patents/ptab/decisions/revised-interim-director-review- process (last updated 4/16/2024)	3
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I. INTRODUCTION

The Director should reverse the Board’s decision denying institution because the Board abused its discretion in finding that the Petition did not demonstrate a reasonable likelihood of proving that a person of ordinary skill in the art (POSITA) would have been motivated to make the proposed combination. Dec. 26-27. The Patent Owner’s Preliminary Response (POPR) induced the Board into material errors which the Board compounded by applying an improper legal analysis.

First, the Board factually erred in finding that “Gurantz [Petitioner’s primary reference] teaches that its multi-casting communication infrastructure (which is OFDM) ‘provides a mechanism to overcome the frequency selective channel impairments present in coaxial building wiring.’” Dec. 25. Gurantz does not describe (or even mention) multi-cast. Based on Patent Owner’s arguments (POPR 52-53, Dec. 22), the Board mistook Gurantz’s description of multi-*carrier* OFDM techniques (i.e., transmitting on multiple different *frequencies* simultaneously), for a description of multi-*casting* (i.e., transmitting to multiple different *users* simultaneously).

Second, the Board erred by requiring the bodily incorporation of Grube’s (Petitioner’s secondary reference) network components into Gurantz. (“Petitioner simply concludes that a skilled artisan would have found it obvious to have Gurantz’s nodes act as Grube’s primary site . . .” Dec. 26). Specifically, at Patent

Owner’s invitation (POPR 58-59), the Board focused on the physical compatibility of the network transmission mediums that are used in the systems of Gurantz (coaxial cable) and Grube (telephone twisted pair), instead of the combination that was actually proposed by Petitioner: adding Grube’s teaching of *common* bit-loading techniques to the bit-loading techniques already taught by Gurantz, in order to enable multi-cast transmission. Pet. 27-33.

On top of these errors, the Board applied a narrow and rigid rather than the “expansive and flexible” approach to obviousness mandated by *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415 (2007). The Board failed to apply Federal Circuit precedent when it rejected Petitioner’s known-technique rationale for combining Gurantz with Grube, because Gurantz purportedly “already accomplishes the same goal that Petition[er] proposes a skilled artisan would have sought to achieve through the proposed modification.” Dec. 25. To the contrary, the Federal Circuit has held it is unnecessary to show a categorical improvement so long as the proposed change is a suitable option. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023) (*PACT II*) (“That [the two references] address the same problem and that [the second reference discloses] a known way to address that problem is precisely the reason that there’s a motivation to combine under KSR and our precedent.”). Bodily incorporation is also not required for a combination of references. *Intel Corp. v. PACT XPP Schweiz AG*, No. 2022-1038, 2023 WL

2198649, *2-4 (Fed. Cir. 2023) (*PACT I*) (non-precedential) (summarizing precedent in reversing PTAB’s determination that IPR petitioner failed to prove obviousness of combination for want of explanation of how base reference would have been modified to bodily incorporate element of secondary reference).

Furthermore, the Decision here is inconsistent with the institution decision on a related patent, U.S. Patent No. 7,295,518 (“the ’518 patent”), where a different panel found sufficient motivation to combine a coaxial cable reference and a bit-loading technique from a twisted pair telephone network. IPR2024-00431, Paper 8 at 22-26 (Sept. 6, 2024).

II. LEGAL STANDARD

“Requests for Director Review of the Board’s decision whether to institute an AIA trial ... shall be limited to decisions presenting (a) an abuse of discretion or (b) important issues of law or policy.” USPTO, Revised Interim Director Review Process, Sec. 2.B., <https://www.uspto.gov/patents/ptab/decisions/revised-interim-director-review-process> (last updated 4/16/2024). “An abuse of discretion is found if [a] 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.” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016) (internal citation omitted).

III. BACKGROUND

Gurantz, within the same family as the challenged '759 patent—and with substantial overlapping disclosure—teaches: (1) A broadband cable network (BCN) adapted to form a local area network (LAN) such that terminal devices (nodes) within a building are able to communicate with each other using the cable network (Pet. 8-9, 22-25); and (2) the use of multi-carrier modulation and bit-loading “to overcome the frequency selective channel impairments in coaxial building wiring when employing a network interface device.” *Id.*; see particularly *id* at 23-24.

In the proposed combination, Gurantz is modified to use, based on Grube’s teachings, probe signals for determining the bit-loading already used by Gurantz¹ (Pet. 25-26, 40), and to include a common bit-loading scheme as taught by Grube, for facilitating multi-cast communication (which Grube teaches, but Gurantz does not). *Id.* 24, 32-37. With support from its expert, Petitioner details obviousness rationales for making these modifications. Pet. 26-27, 32-33.

The Board denied institution on the basis that “Petitioner has not demonstrated a reasonable likelihood of proving that one of ordinary skill in the art would have been motivated to combine Gurantz and Grube as proposed.” Dec. 26-27.

¹ The Board only addresses this modification as part of the further modification to include a common bit-loading scheme. *See, e.g.*, Dec. 16-17.

IV. ARGUMENT

A. The Board Made A Clearly Erroneous Finding of Fact that Gurantz Discloses Multi-cast

In finding that Petitioner failed to sufficiently show a motivation to combine, the Board made a clearly erroneous finding of fact that Gurantz discloses multi-cast communications between its nodes, and thus that Gurantz already accomplished a goal asserted as motivating the combination of Gurantz with Grube.

Specifically, the Decision asserts “Gurantz teaches that its *multi-casting* communication infrastructure (which is OFDM) ‘provides a mechanism to overcome the frequency selective channel impairments present in coaxial building wiring.’” Dec. 25 (emphasis added). According to the Decision, “[t]his uncontradicted evidence [] weakens Petitioner’s [motivation to combine] position because it shows Gurantz’s infrastructure already accomplishes the same goal that Petition [sic] proposes a skilled artisan would have sought to achieve through the proposed modification.” *Id.* (citing Ex. 1007, [0048]).

But Gurantz does not disclose a “multi-casting communication infrastructure” (i.e., a system for simultaneous “one-to-many” communication). Instead, Gurantz discloses that its use of multi-*carrier* modulation (not multi-*casting*) “provides a mechanism to overcome the frequency selective channel impairments present in coaxial building wiring.” Pet. 9, 23; Ex. 1007, [0036], [0047]-[0048].

Apparently, the Board confused Gurantz's multi-*carrier* modulation with multi-*casting*. Cf. Dec. 25 with Ex. 1007, [0036]. Gurantz discloses no connection between multi-*casting* and overcoming frequency selective impairments in coaxial building wiring. Nowhere in Gurantz does the term "multi-casting" even appear.

The Board also cites to the POPR's contention (at 53) that Gurantz is already capable of "one-to-many and many-to-one communications." Dec. 22. But that explanation does not address multi-cast communications in the relevant sense taught by the '759 patent (and Grube as well), namely *simultaneous transmission from a transmitting node to plural receiving nodes*. See Ex. 1001, Fig. 5, 6:52-7:4; Ex. 1009, 14:59-15:5, 15:63-65, Fig. 14 at step 26. It addresses only one-to-one communications flowing to and from the nodes, and between the nodes and the point of entry/network interface 210, through the splitters, as seen in Gurantz's Figure 2.

Here, Patent Owner's expert Dr. Russ was careful in his choice of words. He asserts that "Gurantz teaches that one-to-many communication from the [point-of-entry] to the nodes was taught in prior art BCN systems" and that "[a]s can be seen illustrated in [Figures 1 and 2] Gurantz teaches that the signal propagates throughout the customer premises to various devices from a point of entry." POPR 53-56 (quoting Ex. 2003, ¶ 106). But communication from the point of entry is irrelevant because the point of entry is not a node. Critically, Dr. Russ fails to address a one-to-many simultaneous transmission of data from one of Gurantz's LAN terminal

devices (e.g., 280) (acting as a transmitting node) to plural other LAN terminal devices (e.g., LAN terminal device 282) (acting as receiving nodes) within the building. Nothing in Dr. Russ’s citations to Gurantz ([0004], [0005], [0013]) addresses simultaneous one-to-many and/or many-to-one communications as between Gurantz’s nodes (“terminal devices”), i.e., a multi-cast scenario—because it does not occur.

Dr. Russ asserts that Gurantz’s splitters and pathways are bi-directional, allowing for many-to-one communications. POPR 55-56; Ex. 2003, ¶106. But the fact that the physical, wired connections between the devices would (with suitable configuration) allow for multi-cast signals to be sent, wholly fails to establish a multi-cast transmission actually being made from a transmitting terminal device to plural receiving devices of the Gurantz BCN—or that plural receiving devices could even reliably recover data from such a transmitted signal, due the frequency selective channel impairments that vary with *each path*. Gurantz is prior art “ready for improvement” with the common (LCD) bit-loading technique of Grube which addresses this issue. *KSR*, 550 U.S. at 417. *See, e.g.*, Pet. 32-33; Ex. 1002, ¶ 136.

Dr. Russ’s contention that “Gurantz thus has no further need for the one-to-many or many-to-one communications described in Grube,” (Ex. 2003, ¶ 106, cited at Dec. 22) is unsupported, particularly considering that it is through the provision of a common bit-loading scheme—enabling extension to multi-cast

communications—that the ’759 patent purports to improve upon Gurantz. *See* Pet. 7-9 (§§ III.D, IV.A); *see also*, Ex. 1001, 4:65-67, 6:45-51 (describing a “unicast mode” as shown in Figure 4); *cf. id.*, 5:1-3, 6:52-7:4 (describing a “broadcast” or “multi-cast” mode as shown in Figure 5). Gurantz discloses nothing corresponding to a multi-cast mode. But Grube does. Pet. 9-10, 27-33.

Thus, there is no factual basis for the Board’s conclusion (Dec. 25) that “Gurantz’s infrastructure already accomplishes the same goal that Petition [sic] proposes a skilled artisan would have sought to achieve through the proposed modification.” Instead, the Board’s conclusion rests on a clearly erroneous finding of fact, amounting to an abuse of discretion.

B. The Board Applied An Incorrect Legal Test In Evaluating Petitioner’s Motivation To Combine Rationale

Even if Gurantz did disclose multi-casting, the Board’s conclusion would still be an abuse of discretion because it applied an overly rigid test that the Federal Circuit has expressly rejected. Specifically, the Board made an erroneous conclusion of law when it rejected Petitioner’s proffered combination on the basis that “Gurantz’s infrastructure already accomplishes the same goal that Petition [sic] proposes a skilled artisan would have sought to achieve through the proposed modification.” Dec. 25

A similar situation was presented in *PACT II*, 61 F.4th at 1380-81. Addressing a “so-called ‘known-technique’ rationale” under *KSR*, the Court reversed the PTAB.

The Board determined that if the base reference (Kabemoto) already addressed the problem (of cache coherency) through the use of a known technique similar to that of the asserted secondary reference (Bauman), then it failed to see why one of ordinary skill in the art would regard the secondary reference's technique to be an obvious improvement to the base reference. *Id.* at 1380. The Court reversed, stating that

the Board's reasoning belies its conclusion. That Kabemoto and Bauman address the same problem and that Bauman's cache was a known way to address that problem is precisely the reason that there's a motivation to combine under *KSR* and our precedent.

Id. And as the Court further noted, it is "not necessary to show that a combination is the *best* option, only that it be a *suitable* option." *Id.* (quoting *KSR*; original emphasis). *PACT II* is controlling here and the Board reached an erroneous conclusion of law when it failed to apply it.²

C. The Board Erred Both Legally and Factually In Requiring

² The Board has applied *PACT II* in other recent decisions. *See, e.g., T-Mobile USA, Inc. v. Dali Wireless Inc.*, IPR2022-01345, 2024 WL 967754, *33-34 (PTAB Mar. 6, 2024). *See also* the Director's recent grant of review and reversal in *Prime Time Toys LLC v. Spin Master, Inc.*, IPR2023-01339, 2024 WL 3340025, *5-6 (PTAB July 9, 2024).

Petitioner's Asserted Combination To Bodily Incorporate Elements of Grube Into Gurantz

Regarding the asserted combination of Gurantz and Grube, the Board also erred in requiring bodily incorporation of Grube's "primary site" and "secondary sites," and its precise bit-loading scheme, into Gurantz's BCN. This was contrary to both the obviousness grounds asserted in the Petition, and controlling caselaw. "It is well established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements." *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). Whether one reference can be incorporated in another is "basically irrelevant" since the test for obviousness is "not whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole." *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985). And this error severely distorted the Board's analyses.

For example, the Decision is critical of the support provided by the Petition "for why a skilled artisan would have chosen to configure Gurantz's node to have the functionality Grube describes for its primary site. Here [] Petitioner simply concludes that a skilled artisan would have found it obvious to have Gurantz's nodes act as Grube's primary site..." Dec. 25-26. However, the Petition does not call for any wholesale substitution of Grube's network-specific primary and secondary sites, into Gurantz or vice-versa. Nor does it import Grube's precise bit-loading scheme,

as the Board appears to presume with its criticism that Petitioner’s expert failed to “bridge the gap between how Grube’s bit-loading scheme’s usefulness within a telephone line infrastructure translates to a skilled artisan into adding similar value within a BCN infrastructure.” Dec. 24.

Rather, the Petition is clear that the asserted combination proposes a mere improvement to the bit-loading and nodes (terminal devices) that ***Gurantz already contemplates***: determining appropriate bit-loading for a given transmission path through the use of probe signals, and implementing a common bit-loading methodology in order to facilitate a multi-cast (i.e., simultaneous one-to-many) transmission mode, as taught by Grube. Pet. 26-33. It is only in this sense that the proposed combination involves “configur[ing] any selected one of Gurantz’s terminal devices as a primary site, and Gurantz’s other terminal devices as secondary sites with which the primary site would communicate.” Pet. 35. The Petition makes this unmistakable with its discussion at 36-37, concluding with:

In this obvious configuration, it would be Gurantz’s LAN modem/device pair 270/280 [as a primary site] that determines a common bit-loading modulation scheme, from the plurality of response signals received from the plurality of secondary sites exemplified by Gurantz’s LAN modem/device pair (unlabeled)/282.

Pet. 37; *see also id.* at 38-39.

The Federal Circuit’s recent decision in *PACT I* is instructive. The Board

deemed that IPR petitioner Intel had not shown a sufficient rationale for modifying the base reference King to accommodate the secondary reference Arimilli, because Intel had not specifically explained how Arimilli's shared bus—an element not addressed as part of the combination—would be incorporated. 2023 WL 2198649 at *3. The Court agreed with Intel that this amounted to an improper requirement of proof for a bodily incorporation, and reversed. *Id.* at 3-4.

Similarly, here, POPR arguments cited in the Decision address an unasserted combination—wholesale importation of Grube's primary and secondary sites into Gurantz's BCN. *See, e.g.*, Dec. 19, quoting from the POPR at 39-40 ("Petitioner's combination posits that one of Gurantz's nodes could be employed as Grube's primary site. But Grube's primary site is the headend for a citywide telephonic system; no explanation for why or how [a skilled artisan] could reconfigure one of Gurantz's nodes to function as Grube's headend."). These arguments, which are heavily relied upon in the Decision, should not have been given any weight because they fail to address the combination actually asserted in the Petition and apply an erroneous legal requirement of actual, physical substitution of elements.

D. The Board Clearly Erred In Placing Unreasonable Weight On the Differences Between Gurantz's Coaxial Cable-based Network (BCN) and Grube's Twisted Pair-based Network

Regarding alleged differences between Gurantz's BCN and Grube's network employing twisted pair telephone wiring, the Decision points to the POPR's

assertions concerning the substantially greater bandwidth, data carrying capacity and transmission frequencies/lower wavelengths of coaxial cable. Dec. 20-22 (citing/quoting POPR at 41-45). But, there is no evidence that such differences detract from the motivation a POSITA would have had to adapt Gurantz's bit-loading in view of Grube's common bit-loading to implement a common bit-loading methodology in order to facilitate a multi-cast (i.e., simultaneous one-to-many) transmission mode. The Board's emphasis on the difference between coaxial cable and twisted pair to the exclusion of the other teachings of the art is unreasonable and arbitrary.

For the limited modifications of Gurantz proposed in view of Grube, it is absolutely the case that "Grube's teachings 'would have similar application, with similar benefits' when applied to Gurantz's BCN." Dec. 21 (citing to POPR at 43-44, quoting from Pet. 27). No evidence of record supports a contrary conclusion.

Both Gurantz and Grube employ multi-carrier data transmissions and bit-loading as a means for improving communication efficiency in the face of the transmission impairments that may arise in their particular network scenarios. Grube's teachings of a common bit-loading technique (*see* Pet. 28-32) directly parallel what the '759 patent teaches for a multi-cast or broadcast scenario (*see* Pet. 2-5), in order to deal with the different transmission impairments that may arise along the different paths of the multi-cast/broadcast. The fact that those transmission

impairments may differ in some respects for the BCN network of Gurantz, and the Grube network employing twisted pair telephone line, is immaterial given the explained similarities. Pet. 27. *KSR*, 550 U.S. at 420-21 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”). *See also, In re Mouttet*, 686 F.3d. at 1332 (Board properly determined that “the differences in the circuitry” between the two combined references does not undermine their combinability). Regardless, the bit-loading determined with probe signals would allow for tailoring the multi-carrier modulation to the characteristics of a given signal transmission path (Pet. 26), while the *common* (or LCD) bit-loading technique advantageously produces a single set of bit-loading values suitable for the plural paths of a multi-cast or broadcast transmission (Pet. 32-33).

This is precisely a situation of techniques used to improve one device (Grube) that a POSITA would recognize to improve a similar device (Gurantz). *KSR*, 550 U.S. at 417; *see also, Hisense USA Corp. v. Brightplus Ventures LLC*, IPR2023-01410, 2024 WL 1436732, *13-14 (PTAB Apr. 2, 2024) (Board granting institution of IPR based on the broader teachings of the references over patent owner’s argument of bodily incompatibility). Yet the conclusion reached here is the opposite of that reached by the panel in instituting an IPR of the related ’518 patent. In that proceeding, Petitioner improved a coaxial cable reference (“Ashfary”) with a bit-loading technique from a twisted pair reference (“Mirfakhraei”). IPR2024-00431,

Paper 8 at 13-19. Patent Owner made similar arguments against the combination but the panel found sufficient motivation to combine for institution. *Id.* at 22-26.

The Decision also points to Patent Owner's assertions concerning Grube's alleged "citywide focus" and its concern with "the interface between a citywide primary site at the headend and an entry point with particular buildings" versus Gurantz's alleged concern with "local networks, e.g., within a home, and communications within that network amongst consumer premises equipment within that home." Dec. 20-21 (citing POPR at 42-43). Again, there is no credible evidence that such differences would detract from the obviousness to a POSITA of the limited modifications actually proposed to Gurantz in view of Grube.

Thus, the Board abused its discretion by relying on Patent Owner's alleged differences between Gurantz's BCN and Grube's twisted pair network which are immaterial to determining whether a POSITA had motivation to adapt Gurantz's bit-loading in view of Grube's common bit-loading.

V. CONCLUSION

In view of its underlying errors of law and fact, the Board's Decision Denying Institution of *Inter Partes* Review constituted an abuse of discretion. Accordingly, Director Review is warranted, and reversal of the Decision and institution of *inter partes* review are respectfully requested.

Dated: September 18, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I hereby certify that the foregoing
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DENYING INSTITUTION** in connection with IPR2024-00452 is to be served via
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