

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARRIS GROUP, INC.,
Petitioner,

v.

TQ DELTA, LLC,
Patent Owner.

Case IPR2016-00428
Patent 7,835,430 B2

Before SALLY C. MEDLEY, KALYAN K. DESHPANDE, and
TREVOR M. JEFFERSON, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

DECISION

Decision Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Arris Group, Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–6 of U.S. Patent No. 7,835,430 B2 (Ex. 1001, “the ’430 patent”). Paper 1 (“Pet.”). TQ Delta, LLC (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). We have jurisdiction under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” After considering the Petition, the Preliminary Response, and associated evidence, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing unpatentability of at least one of the challenged claims. Thus, we do not authorize institution of an *inter partes* review of claims 1–6 of the ’430 patent.

A. Related Proceedings

Petitioner indicates that the ’430 patent is the subject of proceedings, including *TQ Delta LLC v. 2Wire Inc.*, Case No. 1-13-cv-01835 (D. Del.). Pet. 3.

B. The ’430 Patent (Ex. 1001)

The ’430 patent discloses systems and methods for reliably exchanging diagnostic and test information between transceivers over a digital subscriber line in the presence of disturbances. Ex. 1001, 1:44–47. The systems and methods include the use of a diagnostic link mode in the communication of diagnostic information from a remote terminal (RT) transceiver or modem to the central office (CO) transceiver or modem, where either modem transmits a message to the other modem to enter diagnostic link mode. *Id.* at 2:44–48, 3:19–29. Each modem includes a

transmitter section for transmitting data and a receiver section for receiving data, and is of the discrete multitone (DMT) type (the modem transmits data over a multiplicity of subchannels of limited bandwidth). *Id.* at 1:58–62. In diagnostic mode, the RT modem sends diagnostic and test information as bits that are modulated to the CO modem. *Id.* at 3:32–34. One described modulation technique includes Differential Phase Shift Keying (DPSK) on a subset or all the carriers, as specified in ITU standard G.994.1, higher order Quadrature Amplitude Modulation (QAM) (>1 bit per carrier). *Id.* at 3:38–41.

Figure 1 illustrates the additional modem components associated with the diagnostic link mode, and is reproduced below:

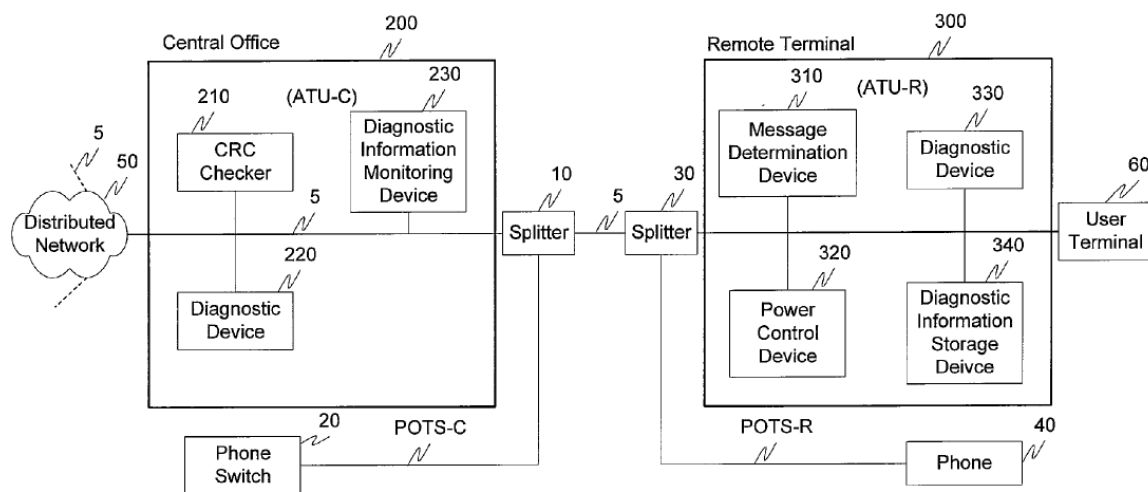


Fig. 1

Figure 1 illustrates a diagnostic mode system, where CO modem 200 and RT modem 300 are connected via link 5 to splitter 10 for a phone switch 20, and a splitter for a phone 40. *Id.* at 4:48–62. CO modem 200 includes CRC checker 210, diagnostic device 220, and diagnostic information monitoring device 230. *Id.* RT modem includes message determination device 310,

power control device 320, diagnostic device 330, and diagnostic information storage device 340. *Id.*

C. Illustrative Claim

Claims 1–6 are independent claims. Claim 1 is reproduced below.

1. A transceiver capable of transmitting test information over a communication channel using multicarrier modulation comprising:
a transmitter portion capable of transmitting a message, wherein the message comprises one or more data variables that represent the test information, wherein bits in the message are modulated onto DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel and wherein at least one data variable of the one or more data variables comprises an array representing frequency domain received idle channel noise information.

Ex. 1001, 8:33–44.

D. The Alleged Grounds of Unpatentability

The information presented in the Petition sets forth proposed grounds of unpatentability of claims 1–6 of the '430 patent under 35 U.S.C. § 103(a) as follows (*see* Pet. 5):¹

References	Claims Challenged
T2500 Manual ² and Held-DataComDev4 ³	1–6

¹ Petitioner supports its challenges with the Declaration of Lance McNally. Ex. 1002.

² Telebit T2500 Reference Manual (90100-02 Rev. C) (1990) (Ex. 1004) (“T2500 Manual”).

³ Data Communications Networking Devices: Operation, Utilization and LAN and WAN Internetworking (4th ed. 1990) (Ex. 1006) (“Held-DataComDev4”).

References	Claims Challenged
Hughes-Hartogs, ⁴ Baran, ⁵ and Frenkel ⁶	1–6

II. ANALYSIS

A. 35 U.S.C. § 315(b)

Petitioner represents, at the time of filing the Petition, that Petitioner does not own the '430 patent and that “[n]either Petitioner nor any real party-in-interest filed a civil action challenging validity of a claim in the '430 Patent.” Pet. 4. Petitioner further represents that “[n]one of the Petitioner nor any real party-in-interest or privy of the Petitioner, has been served with a complaint alleging infringement of the '430 Patent.” *Id.* at 4–5.

Patent Owner argues that the Petition should be denied because “Petitioner Arris is simply the successor-in-interest of another company, 2Wire, Inc. [(2Wire)], which has been involved in litigation with Patent Owner for over two years.” Prelim. Resp. 9. Patent Owner argues that on February 7, 2014, Patent Owner served 2Wire a Second Amended Complaint alleging infringement by 2Wire (“2Wire Lawsuit”). *Id.*; *see also* Ex. 2008. At the time of filing of that complaint, 2Wire, as alleged by Patent Owner, was a wholly-owned subsidiary of Pace Plc. (“Pace”). *Id.* at 10. Patent Owner argues that 2Wire and Pace are barred from filing a petition for an *inter partes* review of the '430 patent under 35 U.S.C. §

⁴ U.S. Patent No. 4,679,227; issued July 7, 1987 (Ex. 1008) (“Hughes-Hartogs”).

⁵ U.S. Patent No. 4,438,511; issued Mar. 20, 1984 (Ex. 1010) (“Baran”).

⁶ U.S. Patent No. 5,838,268; issued Nov. 17, 1998 (Ex. 1011) (“Frenkel”).

315(b). Patent Owner further argues that Petitioner and Pace entered a “Co-operation Agreement to implement a Scheme for the Acquisition and Merger of Pace/2Wire and Arris” and the final closing of the merger occurred on January 4, 2016. *Id.* at 10–11 (citing Ex. 2002; Ex. 2005). This Petition was filed on January 2, 2016. Patent Owner argues that “the Board cannot institute review here, where Arris has acquired a company that otherwise was barred from filing a petition under § 315(b).” *Id.* at 11–14.⁷

We disagree with Patent Owner that Petitioner is barred under 35 U.S.C. § 315(b). Section 315(b) states “[a]n inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.” Specifically, section 315(b) precludes institution if the petition is filed “more than 1 year after the date on which . . . privy of the petitioner is served with a complaint.” Accordingly, § 315(b) is concerned with privity relationships up until the time a petition is filed. *See Synopsys, Inc. v. Mentor Graphics Corp.*, Case IPR2012-00042, slip op. at 12 (PTAB February 22, 2014) (Paper 60) (“This rule makes clear that it is only privity relationships up until the time a petition is filed that matter; any later-acquired privies are irrelevant.”).

⁷ Patent Owner cited to *VMWare, Inc. v. Good Technology Software, Inc.*, Case IPR2015-00027, slip op. at 2 (PTAB March 6, 2015) (Paper 11). However, that case is distinguished from this case because the Petitioner in *VMWare* admitted a barred party was in privity at the time of the filing of the Petition. *Id.* at 2 (“Petitioner admits that AirWatch became its privy . . . at least since February 2014 . . . Petitioner filed the Petition challenging the ’386 patent on October 6, 2014.”).

Patent Owner fails to demonstrate that Petitioner and 2Wire/Pace were in privity on the filing date of the Petition. Patent Owner acknowledges that the Petition was filed on January 2, 2016, whereas the merger between 2Wire/Pace and Petitioner allegedly occurred on January 4, 2016. Patent Owner fails to demonstrate that Petitioner had control over the 2Wire Lawsuit at the time of filing the Petition, or that 2Wire/Pace had controlled, or had an opportunity to control, this proceeding. Although Patent Owner argues that Petitioner and 2Wire/Pace entered a “Common Defense Agreement dated 5/20/15” (Prelim. Resp. 10 (citing Ex. 2004)), Patent Owner does not provide evidence that this agreement gave Petitioner control or the right to control the 2Wire Lawsuit at the time of the filing of the Petition, or that 2Wire/Pace controlled, or had an opportunity to control, this proceeding. Moreover, Patent Owner has not demonstrated that there was a relationship between Petitioner and 2Wire at the time the complaint was served on 2Wire.

Patent Owner additionally argues that Petitioner “controls or has the ability to assume control of the 2Wire Lawsuit.” Prelim. Resp. 14–15 (citing Ex. 2007). Patent Owner argues that “it is not necessary that Arris actually control the 2Wire Lawsuit. It is sufficient if Arris has a ‘legal right, to assume control’ of the on-going 2Wire Lawsuit.” *Id.* (citing *Aruze Gaming Macau, Ltd. v. MGT Gaming, Inc.*, Case IPR2014-01288, slip op. 4 (PTAB February 20, 2015) (Paper 13)). Although we have considered that Petitioner was in the process of acquiring 2Wire/Pace at the time the Petition was filed, Patent Owner has not directed us to sufficient evidence to show that Petitioner had control or had the legal right to assume control over the 2Wire lawsuit at the time of filing the Petition.

Accordingly, we are not persuaded by Patent Owner that Petitioner is barred from filing a petition under section 315(b).

B. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,766. Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Neither party proposes a specific construction for any of the terms of the claims. *See* Pet. 6–7; Prelim. Resp. 8. For purposes of this Decision, we need not construe any limitations of the challenged claims.

C. Obviousness of Claims 1–6 over T2500 Manual and Held-DataComDev4

Petitioner contends that claims 1–6 of the '430 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over T2500 Manual and Held-DataComDev4. Pet. 22–41.

1. T2500 Manual (Ex. 1004)

T2500 Manual is a manual for setting up and using the Telebit T2500 modem. Ex. 1004, 1-1. The manual describes the T2500 modem as using Packetized Ensemble Protocol (PEP) modulation. PEP analyzes the quality of the connection at 511 separate frequency points and compensates for line impairments which may exist. *Id.*

T2500 Manual describes that each time you turn on the modem, a series of internal logic tests, memory tests, and internal loop back checks are

performed. *Id.* at 1-5. Additionally, “the modem provides data transmission statistics, such as line quality analysis, signal-to-noise ratios, frequency offset measurements, data flow analysis and error rates.” *Id.*

T2500 Manual describes the S76 register under the section entitled “Equivalent Line Noise Profile” of the T2500 modem as containing noise level in dBm to the nearest tenth observed at 511 frequency points in the current telephone connection. *Id.* at 5-60. All 511 values are displayed at the time this read only register is accessed. *Id.*

2. *Held-DataComDev4 (Ex. 1006)*

Held-DataComDev4 is a book entitled “Data Communications Networking Devices.” Ex. 1006. Chapter 4 of Held-DataComDev4 includes a section on broadband modems and describes Discrete Multitone (DMT) modulation which permits the transmission of high-speed data using Frequency Division Multiplexing to create multiple channels on twisted pair lines. *Id.* at 503. Held-DataComDev4 describes that the concept behind DMT modulation is similar to that used in the Telebit Packetized Ensemble Protocol (PEP) modem. *Id.*

3. *Analysis*

Based on the record before us, we determine that there is not a reasonable likelihood that Petitioner will prevail in showing that claims 1–6 are unpatentable under 35 U.S.C. § 103(a) as obvious over T2500 Manual and Held-DataComDev4. Pet. 22–41. Petitioner provides a showing, supported by evidence, identifying alleged sections of the prior art as disclosing claims 1–6. *Id.* However, for the reasons that follow, Petitioner has failed to sufficiently account for certain limitations in all of the claims.

Petitioner relies on T2500 Manual for all of the limitations with the exception of the recited “DMT symbols” recited in all of the claims. For the “DMT symbols” limitation, Petitioner relies on a description at page 503 of Held-DataComDev4. Pet. 31.

All of the claims recite “wherein at least one data variable of the one or more data variables comprises an array *representing frequency domain received idle channel noise information*.” Petitioner relies on the description found at page 5-60 of T2500 Manual with respect to “Equivalent Line Noise Profile” to meet the limitation. Pet. 33–35. Petitioner, recognizing that the prior art it relies upon describes “line noise” or “equivalent line noise,” argues that line noise is idle channel noise information. *Id.*

In particular, Petitioner relies on page 55 of the Lance McNally Declaration (Ex. 1002) in support of the argument that “[l]ine noise is idle channel noise information.” Pet. 33. But McNally does not state that line noise is idle channel noise information. Rather, he testifies that “line noise information” disclosed by the T2500 Manual “is equivalent to ‘idle channel noise information.’” Ex. 1002 ¶ 87. McNally does not further expand on what he means when he says that one is “equivalent” to the other. In any event, even if he intended to mean that they are the same, he does not direct us to supporting evidence to support his assertions, and we, therefore, accord his testimony little weight in that regard. *See* 37 C.F.R. § 42.65(a). Nor does Petitioner or Mr. McNally explain or direct us to evidence that would show that, even if line noise information is the same as idle channel noise

information, why line noise information is also the same as *frequency domain received* idle channel noise information⁸ as claimed.

4. Conclusion

For the above reasons, we determine that Petitioner has not shown that there is a reasonable likelihood that it will prevail as to this ground against claims 1–6.

D. Obviousness of Claims 1–6 over Hughes-Hartogs, Baran, and Frenkel

Petitioner contends that claims 1–6 of the '430 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Hughes-Hartogs, Baran, and Frenkel. Pet. 41–60.

1. Hughes-Hartogs (Ex. 1008)

Hughes-Hartogs is directed to the field of data communications and to a high speed modem for use with dial-up voice frequency (VF) telephone lines. Ex. 1008, 1:7–9, 2:43–44. The modem utilizes a multicarrier modulation scheme and variably allocates data and power to the various carriers to maximize the overall data transmission rate. *Id.* at 2:44–47. The modem includes a variable allocation system for sharing control of a communication link between two modems according to user requirements. *Id.* at 2:50–54. Quadrature amplitude modulation (QAM) is utilized to encode data elements of varying complexity on each carrier. *Id.* at 2:58–60.

⁸ Petitioner does not provide a claim construction for the phrase “*frequency domain received* idle channel noise information” such that we should read out of the phrase the italicized words. Nor do we determine, based on the record before us, that we should read out of the phrase the italicized words.

2. *Baran (Ex. 1010)*

Baran discloses a high speed, full duplex modem in the field of data communications. Ex. 1010, 1:7–9. An ensemble of sixty-four orthogonally modulated carriers is digitally generated such that each carrier or tone is individually modulated to contain five bits. *Id.* at 4:45–48. One carrier serves as the pilot tone for coordination between the transmitter and receiver sections of the modem, and maintains timing and frequency calibration or “alignment” irrespective of the telephone network’s carrier heterodyne errors or changes in transmission paths length. *Id.* at 4:48–55. Significant signal parameters are measured and corrective signals are returned to the originating modem on a simultaneous reverse channel. *Id.* at 4:60–62. Test signal arrangements in the modem permit ready use of packets containing only test data, which are useful in providing remote diagnostics and to pinpoint transmission failures. *Id.* at 5:55–59.

3. *Frenkel (Ex. 1011)*

Frenkel is directed to an apparatus and methods for modulation and demodulation of data. Ex. 1011, 1:6–7. Frenkel discloses a data modulating system that includes a mapper that generates a stream of complex-valued vectors from an input stream. *Id.* at 7:55–57. An array of narrow band pass filters receives and filters complex-valued vectors to generate a single stream of complex samples. *Id.* at 7:58–61. An interpolator receives output from the filter array and an up-converter converts this stream to an analog front-end. *Id.* at 8:22–41. The analog front-end generates the final radio frequency (RF) output signal to be transmitted. *Id.* at 8:39–41.

4. Analysis

Based on the record before us, we determine that there is not a reasonable likelihood that Petitioner will prevail in showing that claims 1–6 are unpatentable under 35 U.S.C. § 103(a) as obvious over Hughes-Hartogs, Baran, and Frenkel. Pet. 41–60. Petitioner provides a showing, supported by evidence, identifying alleged sections of the prior art as disclosing the limitations of claims 1–6. *Id.* For example, Petitioner argues that Hughes-Hartogs discloses all of the limitations of claim 1, except for the limitations “the message comprises one or more data variables that represent the test information” and “bits in the message are modulated onto DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel.” Pet. 47–51. Petitioner argues that the combination of Hughes-Hartogs and Baran teaches or suggests “the message comprises one or more data variables that represent the test information.” *Id.* at 47–49. Petitioner further argues that the combination of Hughes-Hartogs and Frenkel teaches or suggests “bits in the message are modulated onto DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel.” *Id.* at 49–51. However, as pointed out by Patent Owner, Petitioner fails to provide articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Specifically, Patent Owner argues that Petitioner does not provide “sufficient factual or reasoned analysis for why a person of ordinary skill in the art would have combined . . . Hughes, Baran, and Frenkel.” Prelim. Resp. 48–51. We agree with Patent Owner that Petitioner has not provided a sufficient reason for combining the asserted prior art. “[A] patent composed

of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418.

Petitioner generally states that the subject matter of the claims was described by Hughes-Hartogs, Baran, and Frenkel “in a manner that would have led a person of ordinary skill in the art to the claimed subject matter through the exercise of only routine skill.” Pet. 45. Petitioner further states that “the modification of ‘227 Patent [Hughes-Hartogs] to include the teachings of ‘511 Patent [Baran] and ‘268 Patent [Frenkel] is demonstrative of the application of a known technique to a known device to yield predictable results under 35 U.S.C. §103.” *Id.* However, Petitioner does not point to evidence or explain why a person with ordinary skill in the art would have combined Hughes-Hartogs, Baran, and Frenkel, why such a combination would have required only “routine skill,” or even why the results of such a combination would have been predictable. *See* Prelim. Resp. 48–51. Accordingly, Petitioner has not provided any *reason* or sufficient evidence that would have prompted a person with ordinary skill in the art to combine Hughes-Hartogs, Baran, and Frenkel in the manner proposed by Petitioner.

At best, Petitioner directs us to pages 66–69 of the Declaration of Mr. Lance McNally. *Id.* at 47–51. Although we decline to incorporate Mr. McNally’s Declaration into the Petition, we note that pages 66–69 of Mr. McNally’s Declaration consist of several paragraphs discussing the application of the cited prior art to independent claim 1 of the ’430 patent. Ex. 1002 ¶¶ 125–136. Only paragraphs 132 and 134 discuss the combination of Hughes-Hartogs and Baran and Hughes-Hartogs with

Frenkel. *Id.* ¶¶ 132, 134. For example, McNally declares that “[a] POSA would combine the ‘227 [Hughes-Hartogs] and ‘511 [Baran] patents to show a test mode with messages comprising one or more data variables that represent the test information.” *Id.* ¶ 132. McNally further declares that “[a] POSA would combine the ‘268 [Frenkel] and ‘227 [Hughes-Hartogs] patents as obvious to meet the claim element of a DMT symbol, using QAM and more than 1 bit per subchannel.” *Id.* ¶ 134. However, such statements are conclusory, unsupported by a sufficient rationale or reason to combine Hughes-Hartogs with Baran or Frenkel. As such, even if we were to incorporate these passages from Mr. McNally’s Declaration into the Petition, which we do not, these passages are insufficient to support a conclusion of obviousness.

Accordingly, we determine that Petitioner has not established a reasonable likelihood it would prevail in demonstrating the obviousness of claim 1 over Hughes-Hartogs, Baran, and Frenkel. The Petition suffers similar deficiencies in its challenge to independent claims 2–6 (*see* Pet. 55–60), and, therefore, we determine that Petitioner has not established a reasonable likelihood in prevailing in its challenge to these claims for the same reasons discussed above.

5. Conclusion

On this record, we are not persuaded that Petitioner has shown a reasonable likelihood that claims 1–6 are obvious over a combination of Hughes-Hartogs, Baran, and Frenkel.

E. Conclusion

For the foregoing reasons, we are not persuaded that Petitioner has met its burden of showing a reasonable likelihood that claims 1–6 of the '430 patent are unpatentable.

III. ORDER

Accordingly, it is

ORDERED that the Petition is *denied*; and

FURTHER ORDERED that no *inter partes* review will be instituted pursuant to 35 U.S.C. § 314(a) with respect to any of the challenged claims of the '430 patent on the grounds of unpatentability asserted in the Petition.

IPR2016-00428
Patent 7,835,430 B2

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