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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

CHANBOND LLC,
Patent Owner.

Case IPR2016-01898
Patent 8,341,679 B2

Before JONI Y. CHANG, JENNIFER S. BISK, and JASON J. CHUNG, *Administrative Patent Judges.*

CHUNG, *Administrative Patent Judge.*

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

I. INTRODUCTION

A. Background

Petitioner, Cisco Systems, Inc., filed a Petition requesting an *inter partes* review of claims 1 and 9 of U.S. Patent No. 8,341,679 B2 (Ex. 1001, "the '679 patent"). Paper 1 ("Pet."). In response, Patent Owner, ChanBond LLC, filed a Preliminary Response. Paper 8 ("Prelim. Resp.").

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314; 37 C.F.R. § 42.4(a), which provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." For the reasons set forth below, we determine that Petitioner has not established a reasonable likelihood of prevailing in showing the unpatentability of the challenged claims. We, thus, decline to institute an *inter partes* review.

B. Related Matters

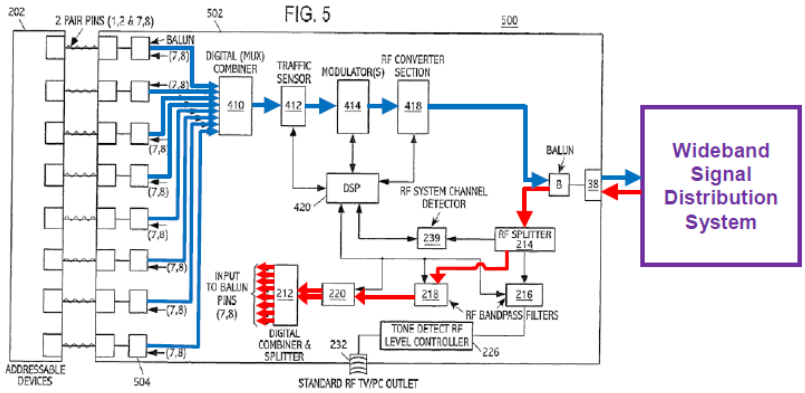
The parties indicate that the '679 patent is involved in numerous proceedings in the United States District Court of the District of Delaware. Pet. 2–3; Paper 5, 1–2. In addition, Cisco has filed two other petitions challenging claims of the '679 patent—IPR2016-01899 and IPR2016-01900. Pet. 3; Paper 5, 2–3.

C. The '679 Patent

The '679 patent is directed to a "system and method for distribution of digital signals onto, and off of, a wideband signal distribution system."

Ex. 1001, 1:24–29. It states that it is directed to solving the difficulties created by "bringing the communication media of television and video into the networked environment" of prior art telephone and data networks. *Id.* at 1:34–35. Specifically, the '679 patent explains that "digital TV/video applications clog data networks, even with the use of available compression techniques." *Id.* at 1:36–40. In addition, the '679 patent notes that "[a]nalog RF distribution may require special cables and infrastructure." *Id.* According to the '679 patent, one solution to this problem would be to transport digitized data on an analog carrier "in a format that would allow for greater amounts of data to be carried at one time, such as by modulated RF." *Id.* at 2:15–16.

To this end, the '679 patent describes a "network of intelligent devices" that "enables digital video, IP voice/data/video, to be modulated and demodulated onto and off of" "a wideband signal distribution system." *Id.* at 2:30–34. The '679 patent's "intelligent device," receives an RF signal that has been modulated onto two or more RF channels, and combines that information back into a single stream. *Id.* at 10:55–11:31. Figure 5, showing this intelligent device as annotated by Patent Owner, is reproduced below:



Prelim. Resp. 3.

Figure 5 of the ’679 patent illustrates the signal path from intelligent device 502 to addressable devices 202. Ex. 1001, 10:55–11:31. The system depicted in Figure 5 is capable both of sending RF signals to, and receiving RF signals from, a wideband signal distribution system via broadband uniform distribution (BUD) unit 38. *Id.* at 10:23–27, 10:52–60. Patent Owner has annotated transmission paths in blue and reception paths in red and added a purple box representing the wideband signal distribution system, with both transmission and receipt paths through BUD 38. Prelim. Resp. 3.

As depicted in Figure 5, when receiving data from the wideband signal distribution system, RF splitter 214 splits the signal entering intelligent device 502, and sends information regarding the RF channels in use to RF system channel detector 239. Ex. 1001, 10:55–60. In addition, the modulated RF signal is differentiated into an IP portion and a non-IP portion, according to the information frequency on the incoming carrier. *Id*. at 10:60–64. The non-IP portion of the signal passes through bandpass filter 216 and is fed to a standard RF television or computer outlet. *Id*. at 10:66–

11:2. The IP portion of the signal passes through bandpass filter 218, and is demodulated by demodulator 220, which strips the RF carrier signal from the digital baseband signal. *Id*. at 11:15–20. Subsequently, the digital signals are combined by digital combiner 212, to achieve a parallel to serial conversion. *Id*. at 11:20–25. This signal is routed to addressable device 202. *Id*. at 11:25–31.

C. Illustrative Claim

As noted above, Petitioner challenges claims 1 and 9 of the '679 patent, of which claim 1 is an independent claim. Claim 1 is illustrative of the challenged claims and is reproduced below:

> 1. An intelligent device for transmitting information on a modulated RF signal, comprising:
>
> an input configured to receive a digital stream containing digital information, the digital information containing at least one destination address to which the digital information is to be sent;
>
> an RF channel detector configured to detect which dynamically allocated RF channels are currently being used in a wideband signal distribution system, and to generate RF channel in use information identifying which of the dynamically allocated RF channels are currently being used in the wideband signal distribution system;
>
> a traffic sensor configured to measure an information throughput of the digital information received by the input, and to generate traffic information identifying the information throughput of the received digital information;
>
> a modulator unit configured to modulate the digital information into at least two separate dynamically allocated RF channels when the traffic information indicates that the information throughput of the digital information exceeds an information capacity of a single RF channel, and to output a modulated RF signal containing the at least two separate dynamically allocated RF channels to the wideband signal distribution system such that the digital information contained in the

received digital stream is distributed across the at least two dynamically allocated RF channels output to the wideband signal distribution system; and

a processor configured to

receive the RF channel in use information generated by the RF channel detector and the traffic information generated by the traffic sensor,

determine which dynamically allocated RF channels are available to carry the digital information, from among a plurality of RF channels contained in the modulated RF signal, based on the RF channels which are identified in the RF channel in use information as not currently being used in the wideband signal distribution system,

determine a number of dynamically allocated RF channels from among the plurality of RF channels contained in the modulated RF signal on which to carry the digital information received by the input based on the information throughput of the digital information and the information capacity of a single RF channel,

instruct the modulator unit to distribute the received digital information across at least two dynamically allocated RF channels by modulating the received digital information into the at least two dynamically allocated RF channels when the traffic information indicates that the information throughput of the digital information exceeds an information capacity of a single RF channel, and

instruct the modulator unit on which specific dynamically allocated RF channels from among the plurality of RF channels to carry the digital information in the modulated RF signal based on the determined number of dynamically allocated RF channels on which to carry the digital information, the at least one destination address contained in the digital information, and the determined available dynamically allocated RF channels which are not currently being used in the wideband signal distribution system.

Ex. 1001, 12:22–13:18.

D. The Asserted Grounds

Petitioner identifies the following as asserted grounds of unpatentability:

Reference(s)	Basis	Instituted Claim(s)
Tiedemann (Ex. 1009)[1], Gilhousen (Ex. 1010)[2], and Jacobs (Ex. 1012)[3]	§ 103(a)[4]	1
Tiedemann, Gilhousen, Jacobs, and Gorsuch (Ex. 1011)[5]	§ 103(a)	1 and 9

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable interpretation in light of the Specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Only those terms that are in controversy need be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

The parties propose constructions for several claim terms. Pet. 13–16; Prelim. Resp. 7–14. For purposes of this Decision, we find it necessary to

[1] U.S. Patent No. 5,859,840, issued Jan. 12, 1999.
[2] U.S. Patent No. 5,103,459, issued Apr. 7, 1992.
[3] U.S. Patent No. 5,414,796, issued May 9, 1995.
[4] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, revised 35 U.S.C. § 103 and the relevant sections took effect on March 16, 2013. Because the application from which the '679 patent issued was filed before that date, our citations to Title 35 are to its pre-AIA version.
[5] U.S. Patent No. 6,801,536, issued Jun. 27, 2000.

address only the claim term "RF channel."

1. "RF channel"

Independent claim 1, from which claim 9 depends, recites the term "RF channel" several times. For example, the recited modulator unit is configured to: (1) "modulate the digital information into *at least two separate dynamically allocated RF channels*" (Ex. 1001, 12:39–41) (emphasis added); (2) "output a modulated RF signal containing the *at least two separate dynamically allocated RF channels*" (*id.* at 12:44–45) (emphasis added); and (3) "the received digital stream is distributed across the *at least two dynamically allocated RF channels* to a wideband signal distribution signal." (*id.* at 12:47–49) (emphasis added).

Petitioner proposes a construction of "RF channel" that "includes 'an RF path for transmitting electric signals.'" Pet. 13. According to Petitioner, the '679 patent provides examples of multiple RF channels "multiplexed on the same frequency bands." *Id.* (citing Ex. 1001, 6:62–65). While Petitioner does not explain this in its claim construction discussion, it becomes clear in its analysis of the prior art that Petitioner construes the term "RF channel" to include channels created by all types of modulation—data streams created by Frequency Division Multiple Access (FDMA), Code Division Multiple Access (CDMA), and Time Division Multiple Access (TDMA). *See, e.g.*, Pet. 33 ("A [person having ordinary skill in the art] would understand that the channels in the RF signal in Tiedemann, whether identified by [CDMA or TDMA] all meet the construction of RF channel as 'an RF path for transmitting electric signals.'").

Patent Owner, on the other hand, argues that the term "RF channel" requires no construction and that Petitioner's construction is "divorced from the intrinsic evidence." Prelim. Resp. 8–9. Although Patent Owner does not propose its own construction in this section (*see id.* at 8–11), Patent Owner implies in its analysis that an RF channel does not include code channels—for example data streams created by CDMA—but instead, refers only to frequency slices, such as those created by FDMA. Prelim. Resp. 14–24.

We agree with Patent Owner that the broadest reasonable construction of the term "RF channel" as used in the '679 patent does not extend beyond frequency bands.

2. Intrinsic Evidence

Our analysis begins with the '679 patent's use of the term. Although the '679 patent does not define explicitly the term "RF channel," it does use the term throughout the specification. These uses of the term are consistent with a meaning related to a frequency band. For example, the specification discusses the "RF carrier channel width" (Ex. 1001, 3:17), "the RF guardband width" (*id.* at 3:17–18), "RF band pass filters 216" (*id.* at 6:39, Fig. 2), "each 6 MHz [RF] channel" (*id.* at 6:54–55), and "band pass filter 810 that passes only the RF channels having wireless information thereon" (*id.* 12:5–6). In addition, when discussing the use of Quadrature Amplitude Modulation (QAM), the '679 patent describes the use of multiple RF channels in the context of frequency bands:

> [n]ote that, for example, where QAM modulation is used, QAM modulation is generally 40 megabits per second, per 6 MHz RF channel, thus requiring the use of two 6 MHz RF channels in order to modulate the 80 megabits per second coming from the

> digital combiner in the exemplary embodiment herinabove. The RF channel frequency is selected from at least two available frequency channels. However, the channel width can, for example, be increased from 6 MHz per channel to 12 MHz per channel in order to accommodate, for example, the 80 megabits per second digital stream, if adjacent channel space is available or unused.

Ex. 1001, 10:3–14. This description confirms that even when contemplating the use of advanced modulation techniques, the '679 patent discusses RF channels in terms of frequency bands. In fact, we see no use of the term "RF channel" in the '679 patent that is inconsistent with a definition restricted to frequency bands. Further, we see no use of the term that is consistent with a broader definition of the term.

As support for its proposed construction, Petitioner asserts that the '679 patent "provides examples of . . . multiple channels multiplexed on the same frequency bands," citing to 6:62–65. Pet. 13. The cited passage states that "[u]sing advanced modulation techniques will allow the wideband signal distribution system 10 to be expanded up to 60, or more, channels, thereby further increasing throughput data rate." Ex. 1001, 6:62–65. As it relates to the term "RF channel," this sentence is at best ambiguous. It does not support clearly Petitioner's statement that multiple channels are multiplexed on the same frequency bands as it could mean just as easily that the signal could be divided into more frequency bands. In light of the '679 patent's otherwise consistent use of the term "RF channel" as meaning

frequency band, this sentence, without more, does not support a broader construction of the term.

Petitioner explains that the '679 patent teaches that "both analog and digital signals can be sent using modulation carrier, such as in digital PCS and cellular telephone" and that the cellular CDMA defines two types of channels—CDMA and code channels. Pet. 13–14 (quoting Ex. 1001, 5:35–39). Based on this, Petitioner concludes that a person of ordinary skill in the art would understand that "these channels are encompassed by the claims." *Id.* at 14. Petitioner does not explain why this would be the case and does not cite to any evidence for this conclusion. Nothing in the cited portions of the '679 patent or Petitioner's argument persuades us that a person of ordinary skill in the art would understand the term "RF channel" to include the terms "CDMA channels" or "code channels."

3. Extrinsic Evidence

In addition, we are not persuaded to give "RF channel" a broader construction based on the extrinsic evidence cited by Petitioner. Petitioner cites to the definition of "channel" in several dictionaries. Pet. 14–15 (citing Ex. 1019, 3; Ex. 1021, 5; Ex. 1022, 4; Ex. 1023, 4). According to Petitioner, these dictionaries support Petitioner's construction even though several of the dictionaries, including the IEEE dictionary, include a definition of *channel* as "[a] band of frequencies." *Id.* We do not agree with Petitioner that these dictionaries, which include definitions that are broader than frequency bands, inform the plain and ordinary meaning of the term "RF

channel." In addition, we note that the dictionary definitions are for "channel" by itself, without the "RF" modifier. Nonetheless, unless the inventor intended a term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record, it is improper to encompass a broader definition simply because it may be found in a dictionary. *Nystrom v. TREX Co, Inc.*, 424 F.3d 1136, 1145 (Fed. Cir. 2005). Here, our inquiry starts with the intrinsic record, including the specification, which is consistent with the more narrow dictionary definition, not the one pointed to by Petitioner.

Petitioner relies on its declarant, Dr. Anthony Wechselberger, for its assertion that a person of ordinary skill would understand the broadest reasonable interpretation of "RF channel" in the context of the '679 patent to include "an RF path for transmitting electric signals." Pet. 13 (citing Ex. 1002 ¶¶ 121, 124). Dr. Wechselberger does testify that this is "the plain and ordinary meaning of the term as it would be understood by a [person of ordinary skill] in the electrical arts in the December 2000 time frame," citing to the dictionary definitions relied on by Petitioner. Ex. 1002 ¶ 121. Dr. Wechselberger goes on to state that the term "RF channel," "as used in the claims, can be used to identify CDMA channels, FDMA channels, and TDMA channels." *Id.* ¶ 125. We do not, however, find Dr. Wechselberger's testimony on this issue credible because of the inconsistent nature of his testimony. In another portion of his testimony, Dr. Wechselberger explains that in CDMA "data streams are spread over a wideband channel using codes that can then be decoded by the receiver," which are called "code channels." *Id.* ¶ 58. Later, while describing the

changing state of the art in cellular systems, Dr. Wechelsberger describes a 2G cellular standard (IS-95) that was a FDMA and CDMA hybrid system using multiple wideband frequency channels each divided into 64 coded channels using Walsh codes. *Id.* ¶ 93. Dr. Wechelsberger describes this system by stating that "[t]he mutual orthogonality of Walsh codes allows one particular coded channel to be isolated and decoded from all other coded channels, even though *they are all broadcasting on the same RF channel*." *Id.* ¶ 94 (emphasis added). This emphasized wording, referring to a particular frequency band as an "RF channel" and to the divisions within the RF channel as "coded channels," directly is contrary to Dr. Wechelsberger's testimony regarding the meaning of the term "RF channel." We, therefore, give no weight to Dr. Wechelsberger's testimony regarding the meaning of the word "RF channel."

4. Conclusion

We conclude that the term "RF channel," as used in the '679 patent, does not include code channels—for example data streams created by CDMA—but instead refers only to frequency bands, such as those created by FDMA.

B. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1 and 9 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Tiedemann, Gilhousen, and Jacobs and over the combination of Tiedemann, Gilhousen, Jacobs, and Gorsuch. Pet. 5.

1. Overview of Tiedemann

Tiedemann discloses a method and apparatus for transmitting a high rate data packet in a CDMA communication system. Ex. 1009, Abs. In an exemplary implementation, mobile station 10 transmits information to and receives information from cell base station 12, which in turn transmits information to and receives information from mobile telephone switching office (MTSO) 14. *Id.* at 3:41–47. The signals are transmitting on "a single channel" using "a unique Walsh spreading sequence" as described in detail in Gilhousen. *Id.* at 3:64–66. A variable rate vocoder, as taught by Jacobs, can be used as a data source to transform voice signals into digital information. *Id.* at 2:3–7.

2. Overview of Gorsuch

Gorsuch is titled "Dynamic Bandwidth Allocation to Transmit a Wireless Protocol Across a Code Division Multiple Access (CDMA) Radio Link." Ex. 1011. It "achieves high data rates through more efficient allocation to the CDMA wireless channels" by "dynamically allocating multiple subchannels of the RF carrier on an as needed basis for each session." *Id.* at 2:21–34.

3. Discussion

Petitioner argues Tiedemann's base station includes the claimed modulator unit in the form of primary modulator 30 and additional modulators 32a-n. Pet. 42–43 (citing Ex. 1009, Fig. 2, 6:55–62, 4:52–58; Ex. 1002 ¶ 214). Petitioner further argues "[u]pon receiving the channel assignment messages from cell controller 40, the modulators modulate the data stream onto the at least two dynamically allocated channels." Pet. 43

(citing Ex. 1009, 6:25–61). In addition, Petitioner argues Tiedemann sends one set of packets to primary modulator for transmission over the primary channel and a second part of packets to additional modulator(s) 32a-n for transmission over dynamically assigned additional channel(s). Pet. 43 (citing Ex. 1009, 6:26–62, 4:24–62, 1:18–21, 2:51–53, 4:15–23). In the context of the claimed "dynamically allocated RF channels," Petitioner also references section X.A.3. from the Petition. Pet. 43. We disagree with Petitioner's arguments.

On this record, we agree with Patent Owner that Petitioner does not show adequately that any of the cited portions of the prior art references teach modulating digital information into *at least two separate dynamically allocated RF channels* as required by each of the challenged claims. Prelim. Resp. 14–15.

The "channels" Tiedemann is referring to in its descriptions are CDMA code channels. Tiedemann first explains that "CDMA has significant advantages over" TDMA and FDMA for multiple access communication systems. Ex. 1009, 1:23–25. Tiedemann then makes clear that "[t]he present invention is described in the context of a CDMA communication system, wherein each channel is provided by spreading the data by a different spreading sequence," noting that "[i]n the exemplary embodiment, the spreading sequences used are orthogonal Walsh

sequences." Ex. 1009, 2:28–33. This is true for the portions of Tiedemann relied upon by Petitioner as well, which we address in turn.[6]

Column 6, lines 25–62 of Tiedemann teaches demultiplexing information to be transmitted, in which information is partitioned into a first part to be transmitted on a primary channel and a second part to be transmitted on additional channels; the information from the first part and the information from the second part are encoded, modulated, then transmitted. Column 6, lines 25–62 of Tiedemann, however, fails to teach "at least two separate dynamically allocated *RF* channels" (emphasis added) as required by each of the challenged claims.

Column 4, lines 15–62 of Tiedemann teaches using encoders to encode the information to be transmitted; Tiedemann explains that "each frame is spread by a Walsh sequence (W_n) that is unique to that channel and orthogonal to all other Walsh sequences used by all other channels upon which data is transmitted from base station." On this record, this portion of

[6] To the extent that Petitioner argues that it refers to section X.A.3. (Pet. 43), which further refers to column 5, lines 39–43 of Tiedemann (*id.* at 31) to teach "at least two separate dynamically allocated *RF* channels" (emphasis added), neither Petitioner nor Dr. Wechelsberger explained adequately why one having ordinary skill in the art would combine Tiedemann's "present invention" embodiment (i.e., CDMA code channels) with Tiedemann's one sentence teaching FDMA. Nothing that Petitioner points us to in Tiedemann leads us to conclude that Petitioner is reasonably likely to show that Tiedemann teaches "at least two dynamically allocated RF channels" as properly construed under the broadest reasonable construction standard. And, Petitioner has not asserted that this limitation would have been obvious based on the disclosure of Tiedemann or Tiedemann in view of any of the other asserted references. *See* Pet. 42–43.

Tiedemann merely teaches at least two *code* channels, rather than at least two *RF* channels. Ex. 1009, 4:15–62.

Column 1, lines 18–21 of Tiedemann teaches a dynamic channel assignment for transmitting data at a high rate efficiently. Similar to the other cited portions relied upon by Petitioner, column 1, lines 18–21 of Tiedemann, however, fails to teach "at least two separate dynamically allocated *RF* channels" (emphasis added) as required by each of the challenged claims.

Column 2, lines 51–53 of Tiedemann teaches channel assignment messages identifying additional channels that will be used to support the high rate data service. As such, column 2, lines 51–53 of Tiedemann fails to teach "at least two separate dynamically allocated *RF* channels" (emphasis added) as required by each of the challenged claims.

Nor does Petitioner's reliance on ¶ 214 of Dr. Wechelsberger's declaration (Pet. 42–43) remedy the aforementioned deficiencies because it conflates the distinct nature of Tiedemann's *code* channels and "at least two separate dynamically allocated *RF* channels" (emphasis added) as required by each of the challenged claims. Moreover, Dr. Wechelsberger acknowledges that these CDMA coded channels all broadcast on the *same* RF channel. Ex. 1002 ¶ 94. In fact, Tiedemann itself implies that its system uses one frequency channel by stating that the described invention may be "*applied* to a frequency division multiple access communication system" and if it is "the channel assignment messages *would specify additional frequencies* which will be used to provide data to mobile station 10." Ex. 1009, 5:39–42 (emphases added).

To the extent that Petitioner argues that it refers to section X.A.3. (Pet. 43), which further refers to column 5, lines 39–43 of Tiedemann (*id.* at 31) to teach "at least two separate dynamically allocated *RF* channels" (emphasis added), neither Petitioner nor Dr. Wechelsberger explained adequately why one having ordinary skill in the art would combine Tiedemann's "present invention" embodiment (i.e., CDMA code channels) with Tiedemann's one sentence teaching FDMA. Nothing that Petitioner points us to in Tiedemann leads us to conclude that Petitioner is reasonably likely to show that Tiedemann teaches "at least two dynamically allocated RF channels" as properly construed under the broadest reasonable construction standard. And, Petitioner has not asserted that this limitation would have been obvious based on the disclosure of Tiedemann or Tiedemann in view of any of the other asserted references. *See* Pet. 42–43.

For these reasons, we determine that Petitioner has not established sufficiently, for purposes of this Decision, that claims 1 and 9 would have been unpatentable as obvious over the combination of Tiedemann, Gilhousen, and Jacobs, or over the combination of Tiedemann, Gilhousen, Jacobs, and Gorsuch.

III. CONCLUSION

We, therefore, decline to institute *inter partes* review on any of the asserted grounds as to any of the challenged claims. 37 C.F.R. § 42.108.

IV. ORDER

It is ordered that the Petition is *denied* as to all challenged claims, and

no trial is instituted.

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