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Paper No. 10
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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 IPR2016-01890
Patent 8,984,565 B2

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

BISK, *Administrative Patent Judge.*

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

INTRODUCTION

Petitioner, Cisco Systems, Inc., filed a Petition requesting an *inter partes* review of claims 37 and 39 of U.S. Patent No. 8,984,565 B2 (Ex. 1001, "the '565 patent"). Paper 1 ("Pet."). Patent Owner, ChanBond LLC, filed a Preliminary Response. Paper 8 ("Prelim. Resp.").

Under 35 U.S.C. § 314(a), 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." After considering the Petition and Preliminary Response, we determine that Petitioner has not established a reasonable likelihood of prevailing in showing the unpatentability of the challenged claims. Accordingly, we decline to institute an *inter partes* review.

A. Related Matters

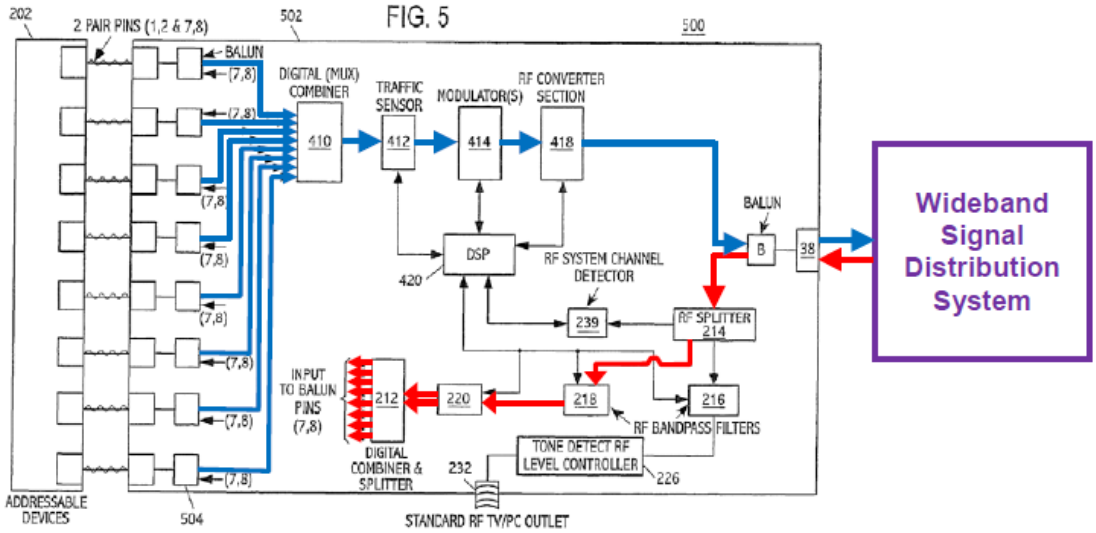
The parties indicate that the '565 patent is involved in several proceedings in the United States District Court of the District of Delaware. Pet. 2–3; Paper 5, 1–2. In addition, Cisco has filed two other petitions challenging claims of the '565 patent—IPR2016-01889 and IPR2016-01891. Pet. 3; Paper 5, 2.

B. The '565 Patent

The '565 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 '565 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 '565 patent notes that "[a]nalog RF distribution may require special cables and infrastructure." *Id.* According to the '565 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 '565 patent describes a "network of intelligent devices" that "enables ditital 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 '565 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 ’565 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

The challenged claims each depend from independent claim 12. Claim 12, reproduced below, is illustrative of the claimed subject matter.

> 12. An intelligent device for bi-directional distribution of modulated RF signals, comprising:
>
> a non-transitory computer-readable recording medium having instructions recorded thereon; and
>
> a processor, by executing the instructions recorded on the computer-readable recording medium, being configured to:
>
> receive a first modulated RF signal containing multiple channels from a wideband signal distribution system;
>
> instruct a demodulator unit to demodulate at least two channels contained in the first modulated RF signal when channel in use information identifies the at least two channels as containing information addressed to at least one addressable device;
>
> instruct a first combiner to combine the at least two channels demodulated by the demodulator unit into a first digital

information stream when the channel in use information identifies the at least two channels as containing information addressed to the at least one addressable device, and to output the first digital information stream to the at least one addressable device;

receive a digital stream containing digital information;

measure an information throughput of the digital information contained in the received digital stream and generate traffic information identifying the information throughput of the received digital information;

instruct a modulator unit to distribute the digital information contained in the received digital stream across at least two separate RF channels by modulating the digital information into the at least two separate 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

output a second modulated RF signal containing the at least two separate RF channels to a wideband signal distribution system.

Ex. 1001, 14:54–15:23.

D. Prior Art Relied Upon

Cisco relies upon the following prior art references (Pet. 9–12):

Reference		Exhibit
Tiedemann	US 5,859,840, issued Jan. 12, 1999	1009
Gilhousen	US 5,103,459, issued Apr. 7, 1992	1010
Gorsuch	US 6,801,536, issued Jun. 27, 2000	1011
Jacobs	US 5,414,796, issued May 9, 1995	1012

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 5):

Claim(s)	Basis	References
37 and 39	§ 103(a)	Tiedemann, Jacobs, and Gilhousen
37 and 39	§ 103(a)	Tiedemann, Jacobs, and Gilhousen, and Gorsuch

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 address only the claim term "RF channel."

"RF channel"

Independent claim 12, from which both 37 and 39 depend, recites the term "RF channel" several times. For example, the recited processor is configured to: (1) "instruct a modulator unit to distribute the digital information contained in the received digital stream across *at least two separate RF channels* by modulating the received digital information into *at least two separate RF channels* when the traffic information indicates that

the information throughput of the digital information exceeds an information capacity of a single RF channel" (Ex. 1001, 15:13–20) (emphases added); and (2) "output a second modulated RF signal containing the *at least two separate RF channels* to a wideband signal distribution signal." (*id.* at 15:21–23) (emphasis added).

Petitioner proposes a construction of "RF channel" that "includes 'an RF path for transmitting electric signals.'" Pet. 13. According to Petitioner, the '565 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. 24 ("The RF channels provided by [CDMA or TDMA] meets the above-identified construction of RF channel.").

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 it's 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 '565 patent does not extend beyond frequency bands.

Intrinsic Evidence

Our analysis begins with the '565 patent's use of the term. Although the '565 patent does not explicitly define 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), 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 '565 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 modultation techniques, the '565 patent discusses RF channels in terms of frequency bands. In fact, we see no use of the term "RF channel" in the '565 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 '565 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 clearly support 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 '565 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 '595 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 '595 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."

2. 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 (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.* at 14–15. 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 '565 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."

Conclusion

We conclude that the term "RF channel," as used in the '595 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. Grounds of Unpatentability

Petitioner asserts that claims 37 and 39 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Tiedemann, Jacobs, and Gilhousen, and over the combination of Tiedemann, Jacobs, Gilhousen, 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. *Analysis*

Patent Owner argues that Petitioner does not show adequately that any of the prior art references disclose modulating digital information into *at least two separate RF channels* as required by the limitation "instruct a modulator unit to distribute the received digital information across *at least two separate RF channels* by modulating the digital information into the *at least two separate RF channels* when the traffic information indicates that the information throughput of the digital information exceeds an information

capacity of a single RF channel," ("limitation 12(h)") as required by all the challenged claims. Prelim. Resp. 15 (emphases added). We agree.

Petitioner argues that Tiedemann "likely discloses all the elements" of claim 12, but "uses Jacobs and Gilhousen to provide additional disclosure" for the limitations "receive a first modulated RF signal containing multiple channels from a wideband signal distribution signal" ("limitation 12(c)"), "instruct a demondulator unit to demodulate at least to channels contained in the first modulated RF signal when channel in use information identifies the at least two channels as conaining information addressed to at least one addressable device" ("limitation 12(d)"), and "measure an information throughput of the digital information. . ." ("limitation 12(g)"). Pet. 18. Petitioner relies on Gorsuch to "provide additional disclosure of the processor and channel selection process" limitations. *Id.* at 18–19.

For the claimed "at least two separate RF channels," Petitioner points to Tiedemann's channels that are assigned dynamically—a "primary channel" and "additional channel(s)"=." Pet. 52–54 (citing Ex. 1009, Fig. 2, 6:55–62, 5:12–6:54; Ex. 1002 ¶ 350). Petitioner implies that the channels disclosed by Tiedemann can be assigned using Walsh sequences in CDMA systems, by frequency in FDMA systems, and by time slot in TDMA systems." *Id.* at 24 Patent Owner disagrees that Tiedemann discloses channels so broadly arguing that "each of Tiedemann's channels is provided by a unique Walsh spreading sequence, i.e., is a coded channel." Prelim. Resp. 19 (internal quotation marks omitted). According to Patent Owner, "Tiedemann only makes a passing, non-enabling reference to FDMA." *Id.*

We agree with Patent Owner that 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. *Id.* at 3:62–66 ("In the exemplary embodiment, mobile station 10 is assigned a primary channel for communication with base station 12. In the exemplary embodiment, a single channel is provided by a unique Walsh spread sequence as described in detail in [US Patent No. 4,901,307 and Gilhousen]."); *see also* Ex. 1009, 4:10–12, 4:52–67, 5:13–31. And Petitioner's expert explains 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 specifiy additional frequencies* which will be used to provide data to mobile station 10." Ex. 1009, 5:39–42 (emphases added).

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 separate RF channels" as we have construed the term "RF channel." 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. 52–54.

For these reasons, we determine that Petitioner has not established sufficiently, for purposes of this Decision, that claims 37 and 39 would have been unpatentable as obvious over the combination of Tiedemann, Jacobs, and Gilhousen, or over the combination of Tiedemann, Jacobs, Gilhousen, and Gorsuch.

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.

ORDER

It is ordered that the Petition is *denied* as to all challenged claims, and no trial is instituted.

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