

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HUGHES NETWORK SYSTEMS, LLC,
Petitioner,

v.

ELBIT SYSTEMS LAND AND C4I LTD.,
Patent Owner.

Case IPR2016-00135
Patent 7,245,874

Before SALLY C. MEDLEY, RAMA G. ELLURU, and WILLIAM M.
FINK, *Administrative Patent Judges*.

ELLURU, *Administrative Patent Judge*.

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

Hughes Network Systems, LLC (“Petitioner”) filed a petition (“Pet.”) to institute an *inter partes* review of claims 1 and 8–12 of U.S. Patent No. 7,245,874 (Ex. 1001, the “’874 patent”). Paper 1. Patent Owner, Elbit Systems Land and C4I Ltd., filed a Preliminary Response (“Prelim. Resp.”). Paper 7. We have jurisdiction under 35 U.S.C. § 314, 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.” For the reasons that follow, we deny an *inter partes* review of claims 1 and 8–12 of the ’874 patent.

I. BACKGROUND

A. *Related Proceedings*

Petitioner avers that the ’874 patent is involved in the following pending district court action: *Elbit Systems Land and C4I Ltd. et al. v. Hughes et al.*, Case No. 2:15-CV-37 (E. D. Tx.).

B. *The ’874 Patent* (Ex. 1001)

The ’874 patent is directed toward infrastructure for a telephony network, including backbone and peripheral infrastructure for a cellular telephony network. Ex. 1001, 1:6–9. The Specification explains that the telephony system is generally based on “E1” or “T1” protocols, which are

strongly synchronous in that the individual transmission to which a time slot is assumed to belong to is determined from its temporal position amongst the other time slots. Thus an individual transmission which does not have current data creates blank slots to reserve its current position.

Id. at 1:26–33. The Specification also explains that “[m]uch available data carrying capacity is based on the TCP/IP” protocol,” which

involves individual data packets being sent out over a network in accordance with destination information contained in a packet header. A single transmission is thus broken down into numerous

packets which are each sent out independently over the network. The packets may be sent along different routes depending on availability and may not arrive in the order in which they have been sent. However the packet headers may be used by the receiving application to rebuild an original sequence from the packets.

Id. at 1:34–43. The Specification contrasts the E1 (and T1) protocol, which it characterizes as depending on the preservation of a temporal relationship between time slots, with the TCP/IP protocol, which does not preserve timing information. *Id.* at 1:44–46.

In addition, the Specification describes the problem in the prior art as not being able to use TCP/IP based capacity to transport E1 data because “synchronization is not preserved, rendering the E1 datastream irrecoverable.” *Id.* at 1:47–49. The objectives of the ’874 patent invention include providing IP based infrastructure and infrastructure backup for cellular telephony networks and providing IP based backbone infrastructure and infrastructure backup for cellular telephony based networks. *Id.* at 1:56–61.

C. Illustrative Claim

Of challenged claims 1 and 8–12, claim 1 is the only independent claim and claims 8–12 depend directly or indirectly from claim 1. Claim 1 is illustrative of the challenged claims and is reproduced below with the claim language at issue highlighted:

1. A branch of a cellular telephone network based on a first synchronous data communication protocol, comprising interfaces to a satellite link using a second, asynchronous, data communication protocol, wherein said interfaces comprise converters for converting data of a datastream between said first data communication protocol and said second data communication protocol, and *wherein said synchronous data protocol allows non-data carrying time*

slots, and said interfaces comprising a non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol and a time slot regenerator for regenerating non-data carrying time slots during reconstruction of said datastream.

D. Prior Art Relied Upon

Petitioner relies upon the following prior art references (Pet. 2–3), and the Declaration of Dr. Raymond Leopold (“Leopold Decl.”) (Ex. 1003):

Reference	Patent	Date	Exhibit
Cox	U.S. Patent No. 6,459,708	December 21, 1999	Ex. 1004
Silverman	U.S. Patent No. 6,731,649	July 26, 2000	Ex. 1005
Arimilli	Application No. WO 95/29576	November 2, 1995	Ex. 1006
Henkel	Canadian Application No. CA 2,290,967	January 28, 1999	Ex. 1008
Houde	U.S. Patent No. 5,623,532	April 22, 1997	Ex. 1009

E. The Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1 and 8–12 of the ’874 patent based on the following grounds (Pet. 3):

Reference(s)	Basis	Claim(s) challenged
Cox and Arimilli	§ 103	1
Cox, Silverman, and Arimilli	§ 103	1
Cox, Silverman, and Arimilli	§ 103	8, 11, and 12
Cox, Silverman, Arimilli, and Henkel	§ 103	9
Cox, Silverman, Arimilli, and Houde	§ 103	10

II. ANALYSIS

A. Claim Interpretation

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the Specification of the patent in which they appear. 37 C.F.R. § 42.100(b), *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1277–78 (Fed. Cir. 2015) (“We conclude that Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA.”), *cert. granted sub nom. Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 890 (2016). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning in view of the Specification, as would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth in the Specification with reasonable clarity, deliberateness, and precision. *In re Paulson*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

“synchronous data communication protocol”

Referring to a dictionary definition, Petitioner argues that the ’874 patent Specification’s use of the term “synchronous data communications protocol” is consistent with the usage in the art at the time of the alleged invention. Pet. 12–13 (citing Ex. 1019, 727). Specifically, Newton’s Telecom Dictionary (14th Ed.) defines “synchronous,” in part, as:

The condition that occurs when two events happen in a specific time relationship with each other and both are under the control of a master clock. Synchronous transmission means there is a constant time between successive bits, characters or events. . . .

In synchronous transmission, characters are spaced by time, not by start and stop bit.

Ex. 1019, 727. Petitioner also refers to the Specification of the '874 patent. Pet. 12 (citing Ex. 1001, 1:26–50). According to Petitioner, based on the Specification and knowledge of skilled artisans, the recited “synchronous data communications protocol” means “a data communications protocol that relies on the temporal relationship between time slots, such as E1 or T1 protocols.” Pet. 13 (citing Ex. 1003 ¶¶ 44–45). Patent Owner does not take a position on the construction of this term. Prelim. Resp. 20.

The '874 patent Specification explains that the telephony system is generally based on E1 or T1 protocols for multiplexing transmissions into time slots. Ex. 1001, 1:26–28. The Specification further describes E1/T1 protocols as “strongly synchronous” because “the individual transmission to which a time slot is assumed to belong to is determined from its temporal position amongst the other time slots.” *Id.* at 1:27–31. The Specification further states that “[t]he E1 (and T1) protocol thus depends on the preservation of a temporal relationship between time slots.” *Id.* at 1:44–45.

For purposes of this decision, based on the '874 patent Specification and the dictionary definition of “synchronous,” we accept Petitioner’s proposed construction and construe “synchronous data communication protocol” to mean “a data communications protocol that relies on the temporal relationship between time slots, such as E1 or T1 protocols.”

“asynchronous data communication protocol”

Petitioner notes that the '874 patent Specification characterizes TCP/IP as an asynchronous protocol and contrasts TCP/IP with E1/T1 protocols, which are characterized as synchronous protocols. Pet. 13 (citations omitted). Petitioner further contends that the '874 patent

Specification's use of the term "asynchronous data communications protocol" is consistent with the usage in the art at the time of the alleged invention given the dictionary definition of "synchronous." *Id.* According to Petitioner, based on the Specification and the knowledge of skilled artisans, the broadest reasonable interpretation of the recited "asynchronous data communications protocol" is "a data communications protocol that does not rely on the temporal relationship between time slots, such as the TCP/IP protocol." *Id.* (citation omitted). Patent Owner does not take a position on the construction of this term. Prelim. Resp. 20.

The Specification characterizes the TCP/IP protocol as an asynchronous protocol. Ex. 1001, 2:18–19. The Specification further contrasts the TCP/IP protocol with E1/T1 protocols, which are characterized as synchronous protocols, because "the TCP/IP protocol does not preserve timing information." *Id.* at 1:44–46.

For purposes of this decision, based on the '874 patent Specification and the dictionary definition of "synchronous," we accept Petitioner's proposed construction and construe "asynchronous data communication protocol" to mean "a data communications protocol that does not rely on the temporal relationship between time slots, such as the TCP/IP protocol."

B. Claim 1

Petitioner contends that claim 1 is obvious over the combination of Cox and Arimilli and over the combination of Cox, Silverman, and Arimilli¹. Both grounds assert that the combination of Cox and Arimilli

¹ Petitioner argues that to the extent we determine the preamble of claim 1 is limiting, the combination of Cox, Silverman and Arimilli discloses each limitation of claim 1. Pet. 14. We need not reach this issue, however, because we determine that Petitioner has not shown sufficiently that two

teaches or suggests the limitations “said synchronous data protocol allows non-data carrying time slots” and “said interfaces comprising a non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol.” Pet. 23–28, 34.

“said synchronous data protocol allows non-data carrying time slots”

In support of its assertion that the combination of Cox and Arimilli teaches or suggests the limitation “said synchronous data protocol allows non-data carrying time slots,” Petitioner argues the following:

The T1/E1 protocols supported by Cox allow non-data carrying time slots. Ex. 1003 at ¶ 124. For example, where the T1/E1 protocols are used for telephonic communication T1/E1 time slots may correspond to silence and therefore not carry any data. Ex. 1003 at ¶ 124; Ex. 1004 2:18-34; Ex. 1006 at 28:8-15. That some voice time slots may be non-data carrying time slots is confirmed by Arimilli. *Id.*

Pet. 23. We are not persuaded by this argument. See Prelim. Resp. 26–27.

The cited disclosure from Cox (Ex. 1004, 2:18–34) discloses that “the T1 carrier protocol, prescribes a series of time-division multiplexed formats for the transmission of digitized telephone conversation data.” Although Petitioner asserts that Cox discloses a “synchronous” data communications protocol, Petitioner does not support sufficiently its contention that Cox allows “non-data carrying time slots.” The cited disclosure from Arimilli (Ex. 1006, 28:8–15) discloses:

A silence detection algorithm 1205 is also included in the programmed code of the DSP 620. The silence detection function is a summation of the square of each sample of the voice signal over the frame. If the power of the voice frame falls below a preselected threshold, this would indicate a silent frame. The

other limitations of claim 1 are taught or suggested in the prior art under either of these grounds.

detection of a silence frame of speech is important for later multiplexing of the V-data (voice data) and C-data (asynchronous computer data) described below. During silent portions of the speech, data processor 318 will transfer conventional digital data (C-data) over the telephone line in lieu of voice data (V-data).

Although Arimilli discloses detecting silence, which Petitioner equates with the recited “non-data,” Petitioner does not support sufficiently its contention that Arimilli teaches or suggests that the detected silence is part of a “time slot” in a “synchronous” data communications protocol. Furthermore, Petitioner has not satisfactorily demonstrated how Cox’s protocol can be modified to include “non-data carrying time slots.”

Petitioner summarily asserts that “[a] person of ordinary skill in the art would understand that Arimilli’s ‘silent frame[.]’ is within the broadest reasonable interpretation of a ‘non-data carrying time slot.’” Pet. 24 (citing Ex. 1003 at ¶ 125²). As discussed above, however, we are not persuaded that Arimilli teaches or suggests the recited “non-data carrying time slots” in a “synchronous” data protocol. Referring to Arimilli (Ex. 1006, 28:8–15), Petitioner asserts that “the passa[ge] above further demonstrates that voice data is transmitted with a synchronous protocol, because it is contrasted with asynchronous computer data.” *Id.* We are not persuaded that the cited passage contrasts synchronous voice data with computer data. For example, as Patent Owner points out, Arimilli suggests voice is represented asynchronously. Prelim. Resp. 29–30 (citing Ex. 1006, 3:20–23). In any event, even assuming Petitioner’s assertion that Arimilli contrasts “synchronous” voice data with “asynchronous” computer data, Petitioner has

² We do not find Dr. Leopold’s testimony helpful because it merely mimics Petitioner’s argument.

not persuaded us that Arimilli's use of these terms is consistent with the constructions of these terms as proposed by Petitioner and adopted by us. *See* Prelim. Resp. 27–28. We construe “synchronous data communication protocol” as meaning “a data communications protocol that relies on the temporal relationship between time slots, such as E1 or T1 protocols.”

According to Arimilli, however, “synchronous data is transmitted in a packet that first contains a header (which contains destination address), followed by a block of data characters and followed by trailer information (such as error checking codes, checks sums, etc.).” Ex. 1006, 10:1–4. In addition, we construe “asynchronous data communication protocol” to mean “a data communications protocol that does not rely on the temporal relationship between time slots, such as the TCP/IP protocol.” Arimilli, however, states that “asynchronous data is by definition formatted by framing each character with a start and stop bit.” *Id.* at 9:30–31.

We therefore are not persuaded that Petitioner has shown that the combination of Cox and Arimilli teaches or suggests the recited “said synchronous data protocol allows non-data carrying time slots” of claim 1.

“said interfaces comprising a non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol”

In support of its assertion that the combination of Cox and Arimilli teaches or suggests the limitation “said interfaces comprising a non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol,” Petitioner cites disclosure from Arimilli, including the following portion:

If the power PWR is lower than a preselected threshold, then the present voice frame is flagged as containing silence. The 128-sample silent frame is still processed by the voice compression

algorithm; however, the silent frame packets are discarded by the data processor 318 so that asynchronous digital data may be transferred in lieu of voice data.

Pet. 24–25 (citing Ex. 1006, 28:7–33). Petitioner subsequently summarily asserts the following:

Arimilli’s flagging and discarding of silent frames is thus within the broadest reasonable interpretation of “said interfaces comprising a non-data carrying time slot remover for removing said non-data carrying time slots.”

Pet. 26 (citation omitted). We are not persuaded by Petitioner’s argument. See Prelim. Resp. 33–35.

As discussed above with respect to the previous limitation, Petitioner has not satisfactorily explained how Arimilli alone, or in combination with Cox, teaches or suggests “non-data carrying *time slots*” (emphasis added). Thus, based on the same reasoning, we are not persuaded that Arimilli or the combination of Arimilli and Cox, teaches or suggests “removing” “non-data carrying *time slots*” (emphasis added). In addition, Petitioner does not satisfactorily explain how the prior art teaches or suggests removing “non-data carrying time slots” “during *conversion into said asynchronous protocol*,” as recited in claim 1 (emphasis added). Specifically, Petitioner does not provide sufficient argument as to how Cox can be modified to remove “non-data carrying time slots” “during *conversion into said asynchronous protocol*” (emphasis added). Petitioner does contend that “Arimilli’s silence suppression algorithm could be implemented, for example, using the existing processors in the T1(E1)-to-IP Multiplexer 500 of Cox.” Pet. 28 (citing Ex. 1004, Fig. 2; Ex. 1003 ¶ 133). Petitioner, however, provides insufficient factual bases to support this assertion. Although Petitioner cites to Dr. Leopold’s declaration testimony, that testimony merely restates Petitioner’s conclusory assertion. Ex. 1003 ¶ 133.

For all of the foregoing reasons, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in demonstrating that claim 1 is unpatentable as obvious.

C. Claims 8–12

Petitioner’s challenges to dependent claims 8–12 (asserted grounds 3–5) incorporate its arguments with respect to claim 1. Pet. 35–60; *see* Prelim. Resp. 24, n.2. For the same reasons discussed above with respect to claim 1, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in demonstrating that claims 8–12 are unpatentable as obvious.

III. CONCLUSION

Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing unpatentability of claims 1 and 8–12 of the ’874 patent.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that an *inter partes* review of claims 1 and 8–12 of the ’874 patent is denied.

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