

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UBIQUITI INC.,

Petitioner,

v.

INTELLECTUAL VENTURES I, LLC,

Patent Owner.

Case No. IPR2024-01290

U.S. Patent No. 8,594,122

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Ex. 2001	U.S. Patent Publ. No. 2005/0114749 to Yonge, III et al.
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I. INTRODUCTION

The Petition (Paper #2) challenges claims 1-8 and 11-42 of U.S. Patent No. 8,594,122 (“122 Patent”) under three statutory grounds. Pet., at 1.

The Petition fails to construe the claims based on the intrinsic evidence. The Petition ignores the statement in the specification defining the SIFS limitation to mean “substantially immediately,” as well as the interview that resulted in allowance of the application. As agreed at that interview, the Examiner *inserted the SIFS limitation* from dependent claim 2 into the independent claims. At the same time, the Examiner *cancelled* dependent claim 3 which had recited an *intervening response* between the first and second communication frames, because dependent claim 3 was outside the scope of the independent claims once they were amended to include the SIFS limitation. These amendments limited the claims to embodiments where the second communication frame *follows substantially immediately after* the first communication frame, and *excluded* from the scope of the claims embodiments with an *intervening response* between the first and second communication frames.

The Petition also failed to show that the cited references have a second communication frame that does “*not* include the address of the second station,” or a first communication frame that includes an “*indication*” that the second communication will not include the address of the second station, as claimed.

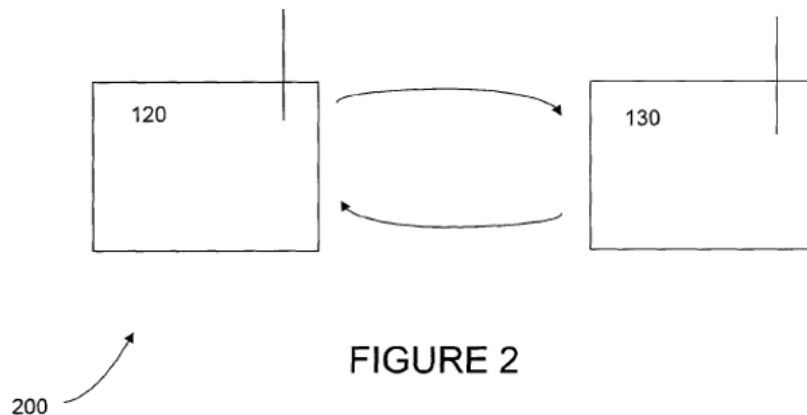
For at least these reasons, institution should be denied.

II. SPECIFICATION OF '122 PATENT

In the context of the 802.11 Standard, the '122 Patent disclosed techniques for “increasing transmission without dramatically affecting overhead.” UBIQUITI-1001, 1:66-67. Aspects of the disclosure were set forth in the Summary, as follows:

Embodiments of the present disclosure can also be viewed as providing methods for transmission announcement indication. In this regard, one embodiment of such a method, among others, can be broadly summarized by the following steps: transmitting a first communication frame from a first station to a second station; providing a transmit announcement indication in the communications frame, the transmit announcement indication indicating whether a second communication frame to the second station will follow the first communication frame. *Id.*, 16-25 (emphasis added).

Figure 2 (below) depicted “an exemplary embodiment of a communication system comprising two stations.” *Id.*, 2:45-46.



“Stations 120, 130 of communication system 200 may comprise transceivers for transmitting and receiving data streams between stations 120, 130, and may include multiple antennas for receiving and/or transmitting.” *Id.*, 4:14-17. In connection

with stations 120 and 130, the ‘122 Patent explained aspects of a “transmission announcement” as follows:

A transmission announcement (TxA) comprises an indication in a transmission frame transmitted from station 120, for example, which is addressed to a certain destination, station 130, for example, that another transmission for that same destination, station 130, will follow. The indicated transmission does not need to include a MAC destination address because the transmission announcement indication was set on the preceding transmission to that station. *Id.*, 4:49-56 (emphasis added).

The ‘122 Patent then explained that the disclosed embodiments fell into different categories. In one category, the transmission indicated by the TxA indication started after the receiver sent a response to the frame that had included the TxA indication. In a different category, the transmission indicated by the TxA indication started before the receiver sent a response to the frame that had included the TxA indication after a short inter frame space (SIFS)¹:

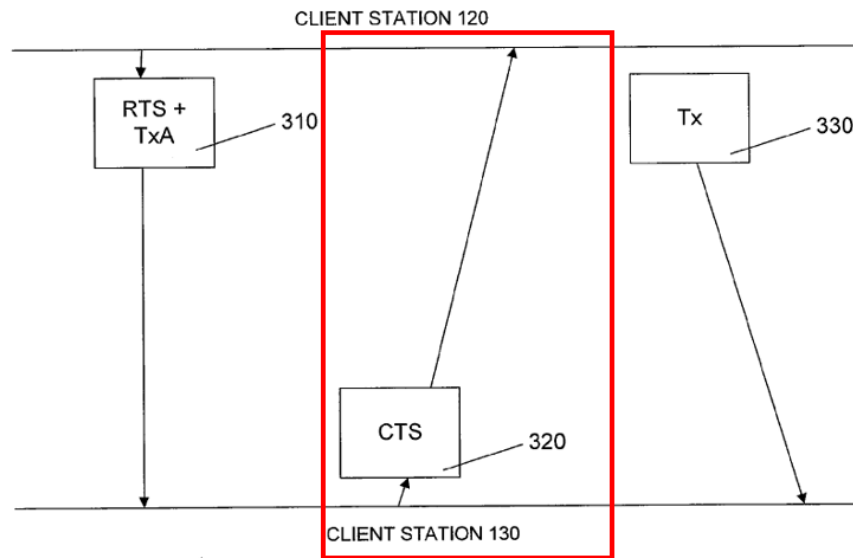
... The transmission indicated by the TxA indication may start after the receiver sends a possible response frame to the frame where the TxA indication is included. The transmission indicated by the TxA indication may also start after the frame where the TxA indication is included, before the receiver sends a possible response frame. The indicated transmission may start after a short inter frame space (SIFS). ... *Id.*, 4:62-5:1 (emphasis added).

¹ The SIFS “is the minimum inter frame space.” Ex. 1001, 5:4.

Next, the '122 Patent described four specific embodiments. In the first two embodiments (depicted in Figures 3-4), the transmission indicated by the TxA indication starts after the receiver sends a response a frame to the frame where the TxA indication is included; in the second two embodiments (depicted in Figures 5-6), the transmission indicated by the TxA indication starts before the receiver sends a response frame to the frame where the TxA indication is included.

A. Embodiments Where The Receiver Sends An Intervening CTS Or ACK Frame Between The Frame Including The Transmit Indication And The Frame Indicated By The Transmit Indication

In the system of Figure 3 (depicted below, red annotations added), station 120 sends a ready to send (RTS) frame with a TxA (310) to station 130:



**Intervening CTS Frame 320
Between Frame 310 (Including The
Transmit Indication) And Frame
330 (The Frame Indicated By The
Transmit Indication)**

FIGURE 3

In the embodiment of Figure 3, after station 120 sends an RTS with TxA 310 to station 130, “station 130 sends CTS 320 [red box] in response to the RTS+TxA 310. Station 130 receives the next transmission 330 as announced by the TxA indication portion of RTS+TXA 310.” *Id.*, 5:25-29. Thus, in the embodiment of Figure 3, the receiving station transmits an intervening CTS frame between the RTS with TxA 310 and the transmission 330 announced by the TxA indication portion of RTS+TXA 310. “In this exemplary embodiment, the announced transmission occurs when station 120 gains control over the medium.” *Id.*, 5:29-31.

Like the embodiment of Figure 3, in the embodiment of Figure 4, there is also an intervening frame (in Figure 4, the intervening frame is an ACK instead of a CTS frame) between the frame with the TxA indication and the transmission announced by TxA indication. Figure 4 (depicted below, red annotations added) “provides an alternative embodiment of systems and methods of TxA indication.” *Id.*, 5:32-33.

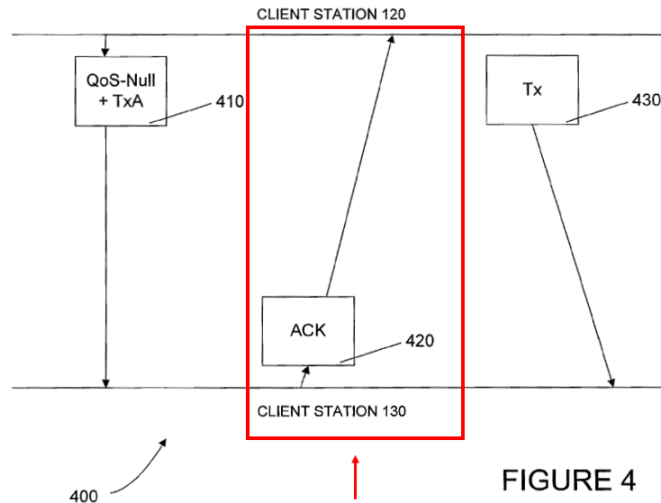


FIGURE 4

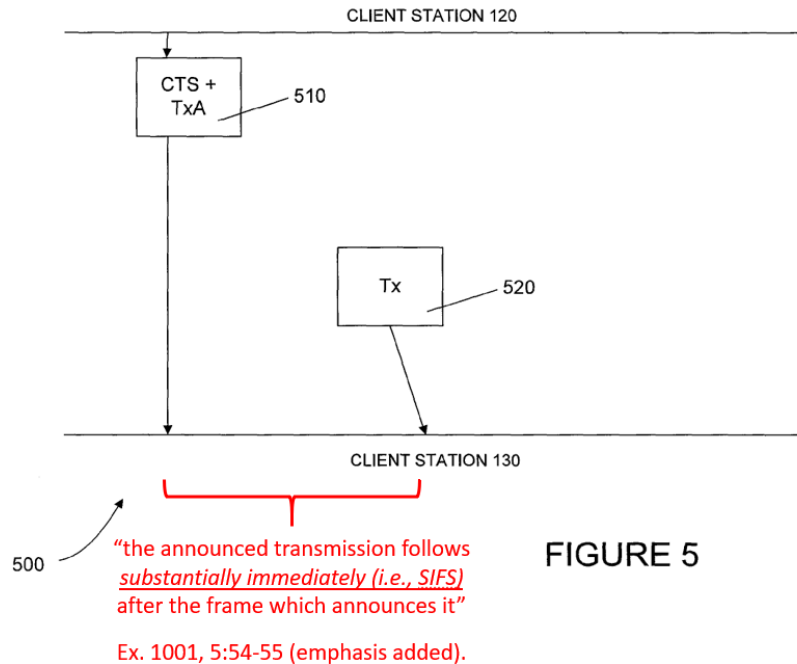
Intervening ACK Frame 420
Between Frame 410 (Including
The Transmit Indication) And
Frame 430 (The Frame Indicated
By The Transmit Indication)

In Figure 4, after station 120 sends a QOS-null with a TxA indication (410) to station 130, “[s]tation 130 sends an ACK in response to the QOS-null. Station 130 receives the next transmission 430 as announced by the TxA indication.” *Id.*, 5:39-42. Thus, in the embodiment of Figure 4, the receiving station transmits an intervening ACK frame between frame 410 (with the TxA) and the transmission 430 announced by the TxA indication portion of frame 410. “Similar to the exemplary embodiment of FIG. 3, the announced transmission occurs when station 120 gains control over the medium.” *Id.*, 5:43-44.

B. Embodiments Where The Frame Indicated By The Transmit Indication Follows Substantially Immediately (i.e., SIFS) After The Frame Including The Transmit Indication

In contrast to the embodiments of Figures 3 and 4, in the embodiment of Figure 5 (depicted below, annotations in red) “the announced transmission follows

substantially immediately (i.e., SIFS) after the frame which announces it.” *Id.*, 5:54-55.



In the embodiment of Figure 5, “station 120 sends a CTS with TxA 510 to station 130. Station 130 receives the next transmission 520 as announced by the TxA indication.” *Id.*, 5:46-49. Here, the ‘122 Patent stated that “[t]he announced transmission follows substantially immediately (i.e., SIFS) after the frame which announces it, with the effect of postponing a potential SIFS response until after the announced transmission.” *Id.*, 5:54-55 (emphasis added). By using the Latin term, “*i.e.*,” which means “that is,” the patentee defined the case where the announced transmission follows a SIFS after the frame that announced it, to mean that the

announced transmission follows substantially immediately after the frame that announced it.²

Like the embodiment of Figure 5, in the embodiment of Figure 6 (depicted below, annotations in red), there is no intervening transmission between the frame with the transmit announcement and the transmission announced by the transmit announcement.

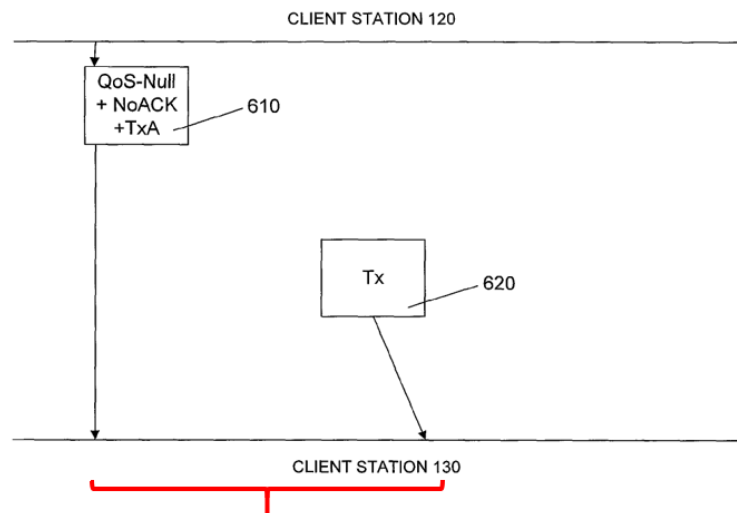


FIGURE 6

No intervening transmission
between frame with transmit
announcement and the
transmission announced by the
transmit announcement

² *Rembrandt Wireless Tech., LP v. Samsung Elecs. Co.*, 853 F.3d 1370, 1376 (Fed. Cir. 2017) (“A patentee’s use of “i.e.,” in the intrinsic record, however, is often definitional. ... Indeed, the term “i.e.” is Latin for id est, which means “that is”), citing, *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) (“[U]se of ‘i.e.’ signals an intent to define the word to which it refers.”).

In Figure 6, “[s]tation 120 sends a QOS-null frame with a TxA indication 610 to station 130, indicating no ACK policy. Station 130 receives the next transmission 620 as announced by the TxA indication.” *Id.*, 5:64-67 (emphasis added).

As described in the next section, the application that led to the ‘122 Patent was originally filed with independent claims that covered all of the embodiments described above. However, during prosecution, the Applicant agreed to limit the independent claims to embodiments where there was no intervening transmission between the frame with the transmit announcement and the transmission announced by the transmit announcement such that “[t]he announced transmission follows substantially immediately (i.e., SIFS) after the frame which announces it.” *Id.*, 5:54-55 (emphasis added).

III. PROSECUTION HISTORY OF ‘122 PATENT

In the application as originally filed, claim 1 recited:

1. A method comprising:
transmitting a first communication frame from a first station to a second station; and
providing a transmit announcement indication in the first communication frame, the transmit announcement indication indicating whether a second communication frame to the second station will follow the first communication frame. Ex. 1002, 774.

Prior to the first office, the Applicant filed a Preliminary Amendment amending claim 1 as follows:

1. (Currently Amended) A method comprising:
transmitting a first communication frame from a first station to a second station; and
providing, at the first station, a transmit announcement indication in the first communication frame, wherein the transmit announcement indication indicates that ~~indicating whether~~ a second communication frame intended for [[to]] the second station will follow the first communication frame. Ex. 1002, 695.

A. The First Office Action And Larsson's Disclosure

In the First Office Action, the Examiner rejected claim 1 as anticipated by Larsson (UBIQUITI-1006). In rejecting claim 1, the Examiner stated:

As per claim 1, Larsson discloses a method (see figure 3, RTS frame and CTS frame) comprising:

transmitting a first communication frame from a first station to a second station (see figure 3, RTS frame, see *paragraph 18*, lines 1-10, originating node sends a first message including transmit duration); and providing at the first station a transmit announcement indication in the first communication frame (see *paragraph 18*, lines 1-10, originating node sends a first message including transmit duration), wherein the transmit announcement indication indicates that a second communication frame intended for the second station will follow the first communication frame (see *paragraph 28*, lines 1-9, transmit duration information may be conveyed in different messages, such as, RTS-CTS message exchanges, see *figure 5, RTS sent from source to destination, followed by data fragments*). UBIQUITI-1002, 665-666 (emphasis added).

Thus, the Examiner rejected claim 1 based on, *inter alia*, paragraphs 18 and 28 of Larsson, and Figure 5 of the reference, each of which is discussed below. Larsson was directed to "Implicit Signaling For Link Adaptation." UBIQUITI-1006, Title. In paragraphs 18 and 28 (cited by the Examiner), Larsson described the operation of its system as follows:

... a designated originating node sends a first message, including an indication of a current transmit duration, sometimes also referred to as a tentative transmit duration, for transfer of a predetermined amount of information, to at least a designated receiving node. The current transmit duration corresponds to a currently assumed data link rate, sometimes also referred to as a tentative link rate. The designated receiving node selects a desired data link rate for subsequent communication from the originating node, and then determines an updated transmit duration according to the selected data link rate. The receiving node sends a second message, including an indication of the updated transmit duration, to at least the designated originating node, and the originating node then determines an updated data link rate in response to the updated transmit duration. *Id.*, [0018] (emphasis added).

* * *

Depending on the particular medium access control (MAC) protocol used in the wireless network, the transmit duration information may be conveyed in different messages. In a contention-based MAC protocol with Request-To-Send/Clear-To-Send (RTS-CTS) message exchange, the tentative (current) transmit duration is preferably indicated in the RTS message and the updated transmit duration is preferably indicated in the CTS message. With data fragmentation, transmit duration information may alternatively or as a complement be indicated in data fragment messages and corresponding data acknowledgment messages. *Id.*, [0028] (emphasis added).

Figure 5 of Larsson (also relied on by Examiner, and reproduced below with colored annotations) depicted a “frame exchange diagram with fragmentation of data.” *Id.*, [0046]. As explained in [0028] of Larsson, the RTS message preferably includes the current transmit duration, and the data fragmentation messages may alternatively or as a complement may, include the transmit duration information. In the annotated version of Figure 5 below, the RTS and data fragmentation frames (the ones carrying the transmit duration information) are shown with red boxes:

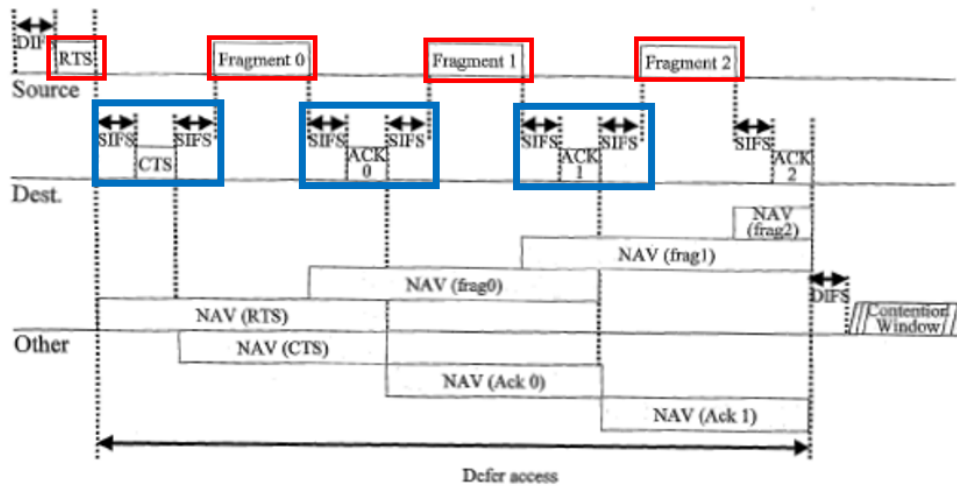


Fig. 5

The blue boxes between the RTS frame Fragment 0, and after each subsequent fragment, show the time interval between successive transmissions from the source. Focusing first on Larsson's "preferred" case where the RTS included the transmit duration information, it is clear there is an *intervening* CTS frame between the RTS and the next transmission from the source (Fragment 0). More specifically, there is *a SIFS followed by a CTS followed by another SIFS* between the RTS frame (carrying the time duration information) and the next transmission from the source (Fragment 0). Focusing next on Larsson's "alternate" case where a fragment (e.g., Fragment 0) includes the transmit duration information, it is also clear that there is an *intervening* ACK frame between that fragment (Fragment 0) and the next transmission from the source (Fragment 1). Again, there is *a SIFS followed by an*

intervening ACK followed by another SIFS between the frame carrying the time duration information and the next transmission from the source.

B. The Response To The First Office Action

In Response to the First Office Action, the Applicant amended claim 1 as follows:

1. (Currently Amended) A method comprising:
transmitting a first communication frame from a first station to a second station; and
~~providing, at the first station, wherein the first communication frame comprises~~ a transmit announcement indication ~~in the first communication frame, wherein the transmit announcement indication indicates~~ indicating that a second communication frame intended for the second station will follow the first communication frame and that the second communication frame will not include an address of the second station. UBIQUITI-1002, 644.

In the accompanying Remarks, the Applicant asserted that Larsson does not disclose at least the features of “a transmit announcement indication indicating that a second communication frame intended for the second station will follow the first communication frame and that the second communication frame will not include an address of the second station.” *Id.*, 652. In explaining how the amended claim language distinguished over Larsson, the Applicant argued that in Larsson “each frame transmitted from the transmitter includes an address field.” *Id.*, 653 (emphasis added); *see also*, 653 (“since each frame of Larsson has an address field, Larsson cannot teach “a transmit announcement indication indicating ... that the

second communication frame will not include an address of the second station,” as recited in Claim 1.”)

C. The Second (Final) Office Action

In the next Office Action, the Examiner acknowledged that Larsson “does not expressly disclose that the second communication frame will not include an address of the second station.” *Id.*, 561 (emphasis added). However, the Examiner reasoned that this feature would have been obvious in view of Yonge (Ex. 2001), and issued a final rejection of claim 1 as obvious in view of the combination of Larsson and Yonge. UBIQUITI-1002, 561-562.

The Examiner reasoned that Yonge disclosed transmission of a data frame 102 and an RTS frame 202, in both cases without a destination address:

Yonge discloses the second communication frame will not include an address of the second station (notice in figure 2, data frame 102 sent without destination address i.e. address of second station, also notice in figure 3, RTS 202 is sent without destination address, notice in paragraphs 20 and 21, the sending MAC 12 needs to know that another Mac 14 is listening before sending data messages such as that shown in figure 2, both the RTS and data messages can be sent over the medium without directly specifying a destination address of MAC 14. *Id.*, 561-562.

With respect to combining Larsson and Yonge, the Examiner stated:

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use Yonge’s teaching wherein the second communication frame will not include an address of the second station ... as a modification in Larsson’s method and system of using the transmit announcement indication (see paragraph 28, lines 1-9, transmit duration information may be conveyed in different messages,

such as, RTS-CTS message exchanges). The motivation to combine would have been to have a method and system for reducing overhead by not requiring transferring of both source and destination addresses in the messages, thereby overall system is enhanced. *Id.*, 562 (citations omitted).

D. Response To The Second (Final) Office Action / Request For Continued Examination

The Applicant filed a response to the Final Office Action, which the Examiner considered after the Applicant filed a Request for Continued Examination. In the response, the Applicant further amended claim 1 as follows:

1. (Currently Amended) A method comprising:
transmitting a first communication frame from a first station to a second station;
wherein the first communication frame comprises an address of the second station and a transmit announcement indication indicating that a second communication frame intended for the second station will follow the first communication frame and that the second communication frame will not include [[an]] the address of the second station. *Id.*, 510.

In the accompanying remarks, the Applicant argued that, in Larsson, “each frame transmitted from the transmitter includes an address field,” and that this was different from amended claim 1, which required that “the second frame will not include an address of the second station.” *Id.*, 518-519. With respect to Yonge, the Applicant argued that “the unique error codes sent by the transmitting station of Yonge are substantially equivalent to a destination address.” *Id.*, 522.

E. Examiner Interview and Examiner's Amendment

Next, the Examiner had an Interview with the Applicant, the substance of which was recorded as follows:

Discussed *cancelation of claims 2-3* and 30-31, and discussed *including subject matter in claim 2 in all independent claims*. Attorney authorized and agreed to the changes. Ex. 1002, 39 (emphasis added).

Significantly, at the time of the interview, dependent claims 2 and 3 recited as follows:

2. The method of claim 1, wherein the second communication frame follows after a short inter frame space (SIFS) after the first communication frame with the transmit announcement indication.

3. The method of claim 1, wherein the second communication frame follows after a short inter frame space (SIFS) *after a response to* the first communication frame with the transmit announcement indication.

Id., 510 (emphasis added). The distinction between claims 2 and 3 could not be more clear: Claim 2 required that the second communication frame follow the first communication frame after a SIFS (which the patentee had previously defined³ to mean that the second communication frame *follows substantially immediately after* the first communication frame); while claim 3 required that there be an *intervening*

³ UBIQUITI-1001, 5:54-55 (“[t]he announced transmission follows *substantially immediately (i.e., SIFS)* after the frame which announces it, with the effect of postponing a potential SIFS response until after the announced transmission”) (emphasis added).

response between the first and second communication frames (and was directed to, e.g., the embodiments of Figures 3 and 4 from the specification.)

By amending the limitations of dependent claim 2 into the independent claims and simultaneously canceling dependent claim 3, the Applicant limited the independent claims to the embodiments where the second communication frame follows substantially immediately after the first communication frame and excluded from the scope of the claims embodiments like those in Figures 3 and 4 of the specification with an intervening response between the first and second communication frames.

The fact that the Applicant limited the independent claims to embodiments where the second communication frame follows substantially immediately after the first communication frame also explains how the claims, as amended, are distinguishable over Larsson (the primary reference). As shown in the annotated version of Larsson below, Larsson included an intervening response (in the form of a CTS or ACK shown in blue boxes) between the frames that the Examiner had previously mapped to the first and second communication frames (red boxes) in the claims:

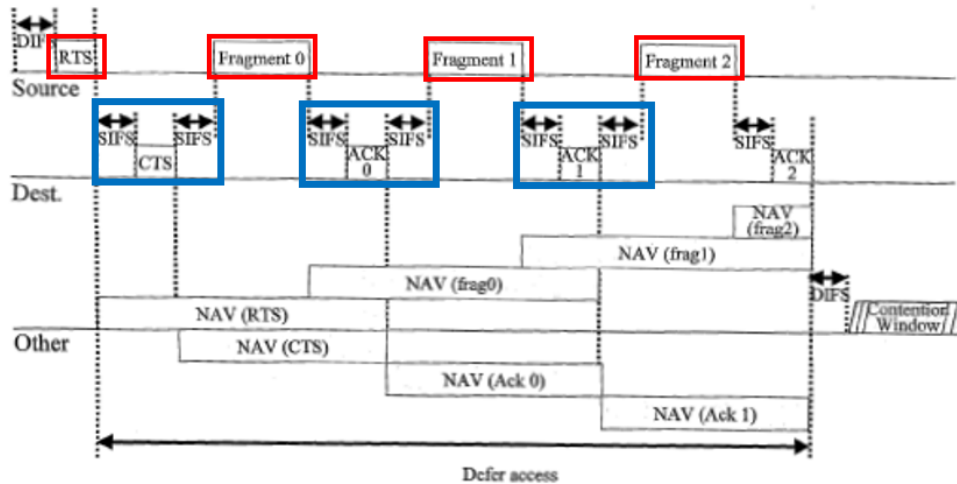


Fig. 5

By limiting the claims to the embodiments where the second communication frame *follows substantially immediately after* the first communication frame, the amendments clearly distinguished over Larsson, which included an *intervening response* between the first and second communication frames.

Following the Interview, the Examiner amended the claims as discussed above and issued a Notice of Allowance. *Id.*, 40-49.

IV. CLAIMS OF ‘122 PATENT

The ‘122 Patent includes six independent claims. Claim 1 is representative:

1. A method comprising:

transmitting a first communication frame from a first station to a second station;

wherein the first communication frame comprises an address of the second station and a transmit announcement indication indicating that a second communication frame intended for the second station will follow the first communication frame and that the second communication frame will not include the address of the second station, and wherein the second communication frame follows after a short inter frame space (SIFS) after the first communication frame with the transmit announcement indication.

Several aspects of the claim language are worthy of note. First, the claim recites a transmit announcement indication indicating, *inter alia*, that the second communication will not include the address of the second station. Second, the claim reflects the amendment made at the end of the prosecution (discussed above), reciting that the second communication frame follows after a short inter frame space (SIFS) after the first communication frame.

V. CLAIM CONSTRUCTION

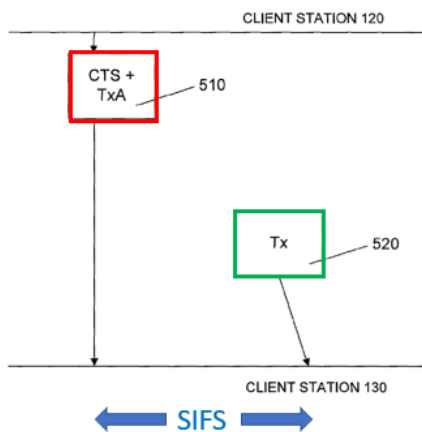
Claim limitations are construed under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Claims should be construed based on the intrinsic record, which includes the specification and the prosecution history. *Id.*, at 1313, *citing, Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (“We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution

history”); *V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1310 (Fed. Cir. 2005) (the intrinsic record “usually provides the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of the invention”); and *Unitherm Food Sys., Inc. v. Swift-Eckrich, Inc.*, 375 F.3d 1341, 1351 (Fed. Cir. 2004) (proper definition is the “definition that one of ordinary skill in the art could ascertain from the intrinsic evidence in the record.”)

Claim 1 recites, “the second communication frame follows after a short inter frame space (SIFS) after the first communication frame.” Each of the other independent claims recites a similar limitation. The parties dispute the meaning of this limitation. Patent Owner maintains that the limitation means that the second communication frame follows substantially immediately after the first communication frame (without any intervening response to the first communication frame); while Petitioner maintains that the SIFS limitation covers transmitting the second communication frame following a SIFS after receiving a CTS or ACK. Pet., 18-19. The different claim construction positions of each side are illustrated below. Under Patent Owner’s proposed construction (left side), the announced transmission (green box) follows substantially immediately (i.e., SIFS) after the frame which announces it (red box); while under the Petitioner’s proposed construction (right

side), the announced transmission (green box) follows after a first SIFS, a response (purple box), and a second SIFS after the frame which announces it (red box):

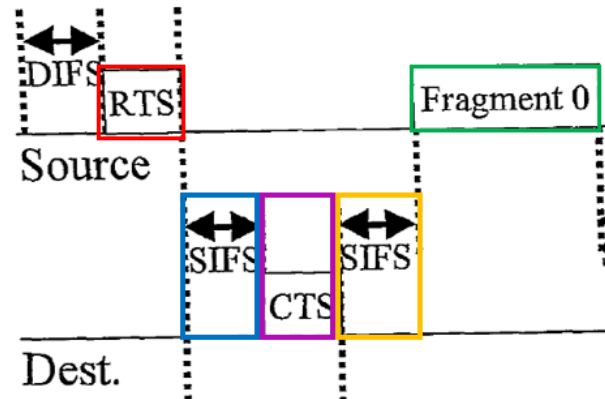
Patent Owner's Proposed Construction



“the **announced transmission** follows **substantially immediately** (i.e., SIFS) after **the frame which announces it**”

Ex. 1001, 5:54-55 (emphasis added).

Petitioner's Proposed Construction



the **announced transmission** follows after a **first SIFS**, a **response**, and a **second SIFS** after **the frame which announces it**

A. The Intrinsic Evidence Demonstrates that The Second Communication Frame Follows Substantially Immediately After the First Communication Frame

Based on the intrinsic record, the claim limitation reciting that “the second communication frame follows after a short inter frame space (SIFS) after the first communication frame,” should be construed to mean that the second communication frame follows *substantially immediately* after the first communication frame without any intervening response to the first communication frame. The intrinsic record makes clear that this is the correct construction for at least three reasons:

First, the specification *explicitly* defines SIFS in the context of the claim language as meaning “substantially immediately.” UBIQUITI-1001, 5:54-55 (“the announced transmission follows substantially immediately (i.e., SIFS) after the frame which announces it, with the effect of postponing a potential SIFS response until after the announced transmission.”) (emphasis added). Specifically, by using the Latin term “*i.e.*,” which mean “*that is*,” the patentee defined the case where the announced transmission follows a SIFS after the frame which it announced it to mean that the announced transmission follows substantially immediately after the frame which announces it. *Rembrandt Wireless*, 853 F.3d 1370, 1376 (Fed. Cir. 2017)(“A patentee’s use of “i.e.,” in the intrinsic record, however, is often definitional. ... Indeed, the term “i.e.” is Latin for *id est*, which means “that is”), citing, *Edwards Lifesciences*, 582 F.3d 1322, 1334 (“[U]se of ‘i.e.’ signals an intent to define the word to which it refers.”) and *Abbott Labs.*, 323 F.3d 1324, 1330 (Fed. Cir. 2003) (holding that a patentee “explicitly defined” a term by using “i.e.” followed by an explanatory phrase). It bears noting that, as set forth in the chart below, the claim language closely tracks the phrase in the specification defining SIFS as “substantially immediately.”

<u>Claim Language (Claim 1)</u>	<u>Specification (Ex. 1001, 5:54-55)</u>
“the second communication frame <u>follows after a short inter frame space (SIFS) after</u> the first communication frame with the transmit announcement indication”	“... the announced transmission <u>follows substantially immediately (i.e., SIFS) after</u> the frame which announces it”

Second, the Examiner’s amendment (just prior to allowance) incorporating the limitations of dependent claim 2 into the independent claims while simultaneously canceling dependent claim 3, demonstrates that the independent claims were limited to embodiments where the second communication frame follows substantially immediately after the first communication frame and embodiments with an intervening response between the first and second communication frames were excluded from the scope of the claims. *See*, Section III (D), *supra*.

Third, interpreting the claim language as suggested in the Petition so as to cover embodiments with an intervening response between the first and second communication frames effectively renders the final wherein clause of claim 1 meaningless. Claim 1 recites in pertinent part:

... a transmit announcement indication indicating that a second communication frame intended for the second station will follow the first communication frame ..., and wherein the second communication frame follows after a short inter frame space (SIFS) after the first communication frame with the transmit announcement indication.

Thus, before the final wherein clause, claim 1 already recited that the “second communication frame ... will follow the first communication frame” and the

specification defines a SIFS as “the minimum interframe space.” UBIQUITI-1001, 5:4 (emphasis added). Thus, prior to the final wherein clause, the claim when read in light of the specification already made clear that the second communication frame followed the first communication by at least a SIFS. Interpreting the final wherein clause in a manner that simply requires the second frame to follow the first frame by at least a SIFS (allowing intervening responses between the first and second frames) would render the final wherein clause superfluous. More specifically, prior to final wherein clause, the claim had already established that the second frame came after the first frame, and the specification made clear that the spacing between the first and second frames had to be at least a SIFS. Interpreting the final wherein clause to also mean that the second frame comes after the first frame by at least a SIFS (as done by Petitioner) would render the final wherein clause completely redundant. *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950-951 (Fed. Cir. 2006)(claims are interpreted with an eye toward giving effect to all terms in the claim).⁴ However,

⁴ See also, *Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1305, 1307 (Fed. Cir. 2000) (claim language “only within a zone extending between latitudes 30 [degrees] -45 [degrees]” does not read on a device with radiation sources extending between 14 [degrees] and 43 [degrees] because “any other conclusion renders the reference to 30 [degrees] superfluous”); *Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1563 (Fed. Cir. 1991); *In re Danly*, 46 C.C.P.A. 792, 263 F.2d 844, 847, 1959 Dec. Comm'r Pat. 212 (CCPA 1959) (limiting claims to require that the claimed device actually be connected to an alternating current source because, although the claims “do not positively recite a source of alternating current as an

reading the claim language in the manner proposed by Patent Owner renders the final wherein clause meaningful, by adding the further requirement that the second communication frame follows substantially immediately (i.e., SIFS) after the first communication frame.

In summary, the intrinsic evidence makes clear that the correct construction of “the second communication frame follows after a short inter frame space (SIFS) after the first communication frame” is one that requires the second communication frame to follow substantially immediately after the first communication frame without any intervening responses to the first communication frame. The Petition makes two arguments to the contrary, both of which are addressed below.

B. There Is No Requirement For The Claims To Cover All Of The Disclosed Embodiments Where, As Here, The Intrinsic Evidence Is Inconsistent With Such A Construction

In advancing a contrary construction, the Petitioner argues that a broader interpretation of the claim language is required because the specification includes embodiments such as those shown in Figures 3 and 4 of the ‘122 Patent, which include an intervening response between the first and second communication frames. *See, Pet.*, 21-23. However, the Federal Circuit has made clear that it is appropriate

element of the claims,” any other interpretation would render certain language in the claims meaningless).

to exclude disclosed embodiments from the scope of the claims where, as here, those embodiments are inconsistent with the prosecution history. *Sinorgchem Co. v. ITC*, 511 F.3d 1132 (Fed. Cir. 2007) (“Where, as here, multiple embodiments are disclosed, we have previously interpreted claims to exclude embodiments where those embodiments are inconsistent with unambiguous language in the patent’s specification or prosecution history”); see also, *August Tech. Corp. v. Camtek, Ltd.*, 655 F. 3d 1278, 1285 (Fed. Cir. 2011) (“The mere fact that there is an alternative embodiment disclosed in the [asserted patent] that is not encompassed by [our] claim construction does not outweigh the language of the claim, especially when the court’s construction is supported by the intrinsic evidence”) (citations omitted); *TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1373 (Fed. Cir. 2008); *Pacing Techs., LLC v. Garman Int’l, Inc.*, 776 F.3d 1021 (Fed. Cir. 2015).

C. The Dependent Claims Are Consistent With Patent Owner’s Proposed Construction

The Petition also makes a claim differentiation argument that certain dependent claims require a construction that permits an intervening response between the first and second communication frames. This argument lacks merit because, as explained in detail below, none the dependent claims identified by Petitioner require an intervening response between the first and second communication frames. Rather, all of such dependent claims are fully consistent with the independent claims as interpreted by Patent Owner - where the second

communication frame follows after the first communication frame without any intervening responses to the first communication frame.

Before getting into the details as to why Petitioner's reading of the dependent claims is erroneous, it is important to put the doctrine of claim differentiation into context. As the Federal Circuit explained in *Regents of the Univ. of Cal. v. DakoCytomation Cal., Inc.*, 517 F.3d 1364 (Fed. Cir. 2008):

... We have held that “[w]hile it is true that dependent claims can aid in interpreting the scope of claims from which they depend, they are only an aid to interpretation and are not conclusive.” *N. Am. Vaccine, Inc. v. Am. Cyanamid Co.*, 7 F.3d 1571, 1577 (Fed. Cir. 1993). Indeed, the presumption created by the doctrine of claim differentiation is “not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.” *Seachange Int’l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005). Here, as discussed above, the prosecution history overcomes the presumption; the correct construction of “heterogeneous mixture” is one that excludes repetitive sequences, notwithstanding the presence of certain dependent claims that do not exclude them. (emphasis added).

Thus, even if the dependent claims identified by Petitioner were somehow inconsistent with the independent claims (as explained below, this is not the case), such inconsistencies would be insufficient to overcome the express definition in the specification of the SIFS limitation as meaning “substantially immediately” (UBIQUITI-1001, 5:54-55) and the clear disavowal of claim scope that occurred at the end of prosecution when the Examiner incorporated the limitations of dependent claim 2 into the independent claims while simultaneously cancelling dependent

claim 3 (which had recited an intervening response between the first and second communication frames).

Turning now to the specifics of Petitioner's claim differentiation arguments. These arguments lack merit because, as detailed below, none of the dependent claims identified by Petitioner require an intervening response between the first and second communication frames.

1. Dependent Claim 3

The Petition argues that dependent claim 3 requires that claim 1 be interpreted in a manner that permits an intervening response between the first and second communication frames. Pet., 21 (arguing that claims 3-5 require the “schema illustrated in Figure 3”). Patent Owner respectfully disagrees.

Claim 3 depends from claim 1 and recites that “the first communication frame comprises providing the transmit announcement indication with a request to send (RTS) frame.” The additional limitations of claim 3 are fully supported by the embodiments discussed in connection with Figure 5, where the second communication frame directly follows the first communication frame after a SIFS (with no intervening response). While Figure 5 depicts the first frame as a CTS, the ‘122 Patent states that “[t]his embodiment may be applied to other frame types as well, in which case the announced transmission follows substantially immediately (i.e., SIFS) after the frame which announces it”) UBIQUITI-1001, 5:52-55

(emphasis added). In contrast to the CTS frame depicted in Figure 5, the RTS frame recited in claim 3 is an “other frame type” used to announce the transmission that follows substantially immediately. Contrary to the Petition, the limitations of claim 3 do not require the “schema illustrated by Figure 3” (which has an intervening response between the first and second communication frames) and are instead fully supported by the embodiments described in connection with Figure 5 (which lack any intervening response between the first and second communication frames).

2. Dependent Claim 4

There is also nothing inconsistent between dependent 4 and the construction of claim 1 advanced by Patent Owner. Claim 4 depends from claim 3 and further recites “receiving, by the first station, a clear to send (CTS) frame from the second station after the first station has transmitted the transmit announcement indication with the RTS frame.” The further limitations of dependent claim 4 are also supported by the embodiments discussed in connection with Figure 5, where the second communication frame directly follows the first communication frame after a SIFS (with no intervening response). As mentioned above, while Figure 5 depicts the first frame as a CTS, the ‘122 Patent explains that the embodiment of Figure 5 can be applied to other frame types (like RTS frames). In this regard, the specification stated:

In this exemplary embodiment, station 130 may gain control over the medium after the transmission announced in the CTS, even when the

existing frame exchange sequence would dictate otherwise. This embodiment may be applied to other frame types as well, in which case the announced transmission follows substantially immediately (i.e., SIFS) after the frame which announces it, with the effect of postponing a potential SIFS response until after the announced transmission. Ex. 1001, 5:50-55 (emphasis added).

Thus, the specification clearly discloses a sequence in which the announced frame (the “second communication frame”) follows substantially immediately after the frame that announces it (the “first communication frame”), and then after the announced transmission (the “second communication frame”) there is a “postponed” response from the other station (such as the CTS recited in dependent claim 4). Thus, there is nothing inconsistent between the construction of claim 1 advanced by Patent Owner (which requires that the second communication frame be sent substantially immediately after the first communication frame) and the additional limitations of dependent claim 4 (which requires that a response be sent after the second communication frame.) Again, contrary to the Petition, the limitations of claim 4 do not require the “schema illustrated by Figure 3” (which has an intervening response between the first and second communication frames) and are instead fully supported by the embodiments described in connection with Figure 5 (which lack any intervening response between the first and second communication frames).

3. Dependent Claim 5

Claim 5 depends from claim 4 and further recites “transmitting the second communication frame from the first station to the second station, wherein the second

communication frame does not include the address of the second station.” The limitations of claim 5 do not require the “schema illustrated in Figure 3” as suggested in the Petition. Pet., 21. Rather, these additional limitations are fully consistent with the embodiments described in connection with Figure 5, which lack an intervening response between the first and second communication frames.

4. Dependent Claim 6

The Petition also argues that dependent claim 6 requires that claim 1 be interpreted in a manner that permits an intervening response between the first and second communication frames. Pet., 22 (arguing that claims 6-8 require the “schema illustrated by Figure 4”). Again, Patent Owner respectfully disagrees.

Claim 6 depends from claim 1 and recites “wherein transmitting the first communication frame comprises providing the transmit announcement indication in a quality of service null (QoSnull) frame.” The additional limitations of claim 6 are fully supported by the embodiments discussed in connection with Figure 6, where the second communication frame directly follows the first communication frame (this is a QoSnull frame) after a SIFS (with no intervening response). Figure 6 from the ‘122 Patent is reproduced below with annotations in red:

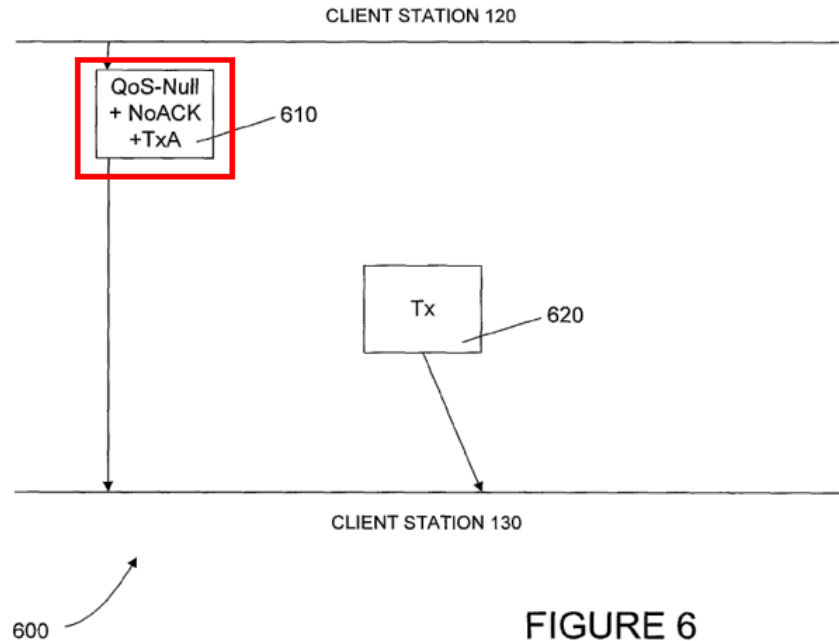


FIGURE 6

Figure 6 depicts the first frame as a QoSNull frame (red box). In contrast to the embodiment of Figure 4, there is no intervening response between the two communication frames (610, 620) in Figure 6. Contrary to the Petition, the limitations of claim 6 do not require the “schema illustrated by Figure 4” (which has an intervening response between the first and second communication frames) and are instead fully supported by the embodiments described in connection with Figure 6 (which lack any intervening response between the first and second communication frames).

5. Dependent Claim 7

Claim 7 depends from claim 6 and further recites “receiving, by the first station, an acknowledgement (ACK) frame from the second station after the first

station has transmitted the transmit announcement indication with the QoS-null frame.” As was the case with claim dependent claim 4 discussed in Section V(C)(2), *supra*, claim 7 adds an additional limitation requiring that a response (in the form and ACK) be sent after the second communication frame. Nothing in the language of dependent claim 7 requires that the ACK be sent between the first and second communication frames as suggested in the Petition. *See also*, UBIQUITI-1001, 5:54-57 (disclosing case where “announced transmission follows substantially immediately (i.e., SIFS) after the frame which announces it, with the effect of postponing a potential SIFS response until after the announced transmission”) (emphasis added).

6. Dependent Claim 8

Claim 8 depends from claim 7 and further recites “transmitting the second communication frame associated with the transmit announcement indication.” As was the case with dependent claim 5, nothing in dependent claim 8 requires an intervening response between the first and second communication frames, as argued in the Petition.

In summary, contrary to the arguments in the Petition (at 18-19), there is no need to interpret “the SIFS limitation ... to include transmitting the second communication frame following a SIFS after receiving a CTS (e.g., claim 5) or ACK

(e.g., claim 8)” in order for dependent claims 3-5 and 6-8 to “make sense.” Rather, based on the intrinsic record, it is clear that the “SIFS limitation” means that the second communication frame follows substantially immediately after the first communication frame without any intervening response to the first communication frame.

VI. PRIOR ART RELIED ON IN THE PETITION

A. U.S. Patent No. 8,374,096 to Gu et al. (UBIQUITI-1007)

Gu discloses a method for selecting antenna beams in multi-input multiple-output (MIMO) wireless local area networks (LANs), operating at the MAC layer to optimize efficiency and minimize overhead compared to conventional methods. UBIQUITI-1007, Title, 3:58-64. Contrary to the Petition’s assertions, Gu does not disclose that its sounding packets are PHY packets lacking a receiver address.

1. Frame Sequence In Training Method With LAC Frame

Figure 7 of Gu shows the details of a “training method with LAC frame according to an embodiment of the invention.” *Id.*, 7:38-39; *see also*, 1:59-60 (defining a link adaptation control (LAC) frame.) Figure 7 is reproduced below, with coloring of signals 701, 702 and 703 added by Patent Owner:

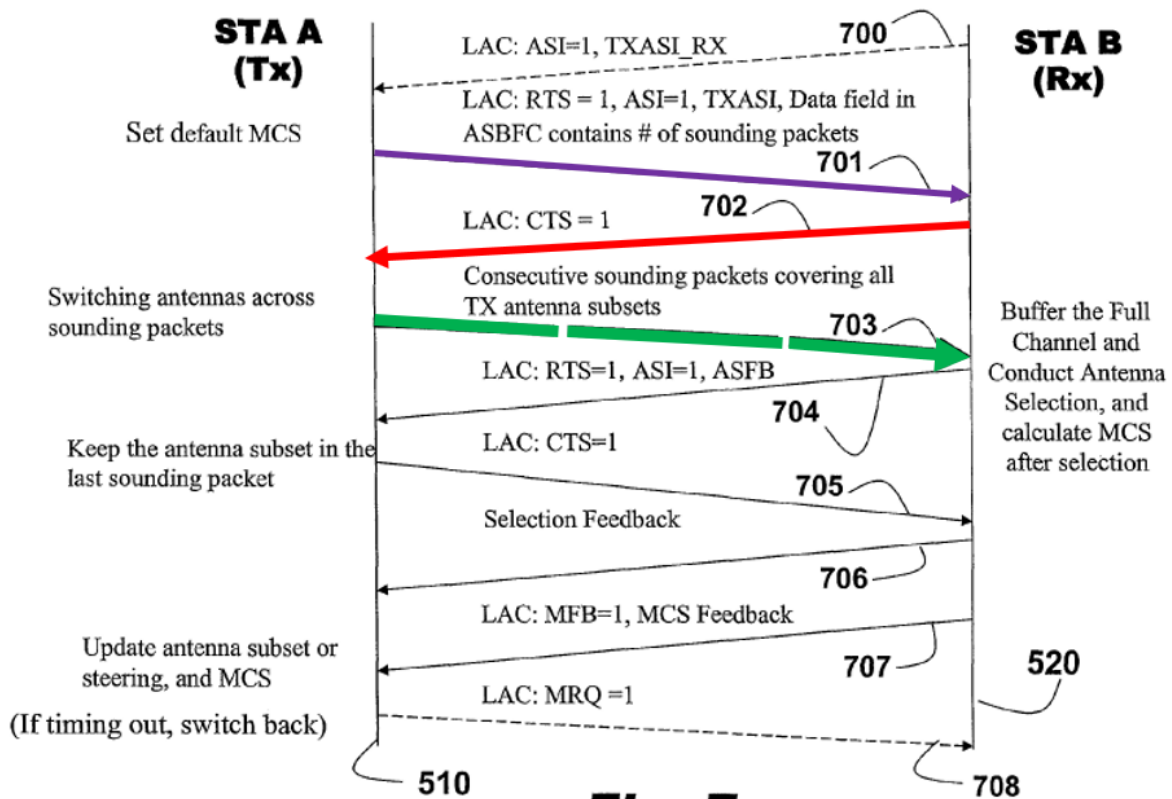


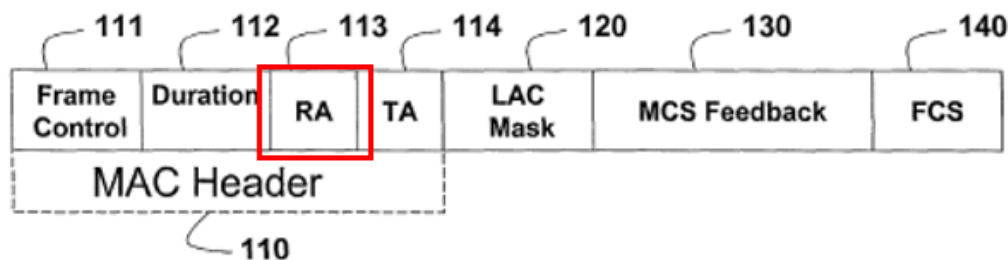
Fig. 7

As shown in Figure 7 of Gu, “[t]he transmitter sets its MCS selection to a reliable one, e.g., default MCS, and then sends 701 [purple line] a LAC frame with ASI=1 and the command TXASI.” *Id.*, 7:46-49. “Upon receiving the LAC frame, the receiver sends 702 [red line] a LAC frame with CTS=1. This indicates that the receiver is ready to receive the sounding packets.” *Id.*, 7:52-54. “Upon receiving the LAC frame with CTS=1, the transmitter sends 703 [green line] consecutive sounding packets ...” *Id.*, 7:60-61. There is no dispute that the receiver 520 [STA B] in Gu sends an *intervening response* 702 [red line] between transmitter 510 (STA A)

sending LAC frame 701 [purple line] and transmitter 510 (STA A) sending 703 [green line] sounding packets.

2. Structure of Sounding Packets

Gu discloses that its link adaptation control (LAC) frame is “defined at the MAC layer.” *Id.*, 1:59-60. The “LAC frame” is shown in Figure 1 of Gu, which is reproduced below with Patent Owner’s annotations in red:



As explained in Gu:

The LAC frame contains the following fields: a MAC header 110, a LAC mask 120 for indicating the logical elements carried in the current control frame, a modulation coding scheme (MCS) feedback field 130 for indicating transmitting parameters, and a frame check sequence (FCS) 140 for error detection. The MAC header 110 applies for any MAC layer packet, which includes a frame control 111, duration 112, receive address (RA) 113, and transmit address (TA) 114. *Id.*, 1:66-2:7 (emphasis added).

Gu could not be more clear: the MAC header 110 applies for any MAC layer packet, and the MAC header includes the receiver address (red box). Moreover, Gu also makes clear that its method operates only at the MAC layer (and not the PHY layer.) As explained in the “Summary of the Invention” of Gu:

The sounding packets, in addition to training the MIMO channel for selecting antennas/beams, can also include data which makes the method extremely efficient because training and data transfer is performed concurrently. Because the method operates at the MAC layer, the method has less over head than conventional methods that operate at both the MAC and PHY layers. *Id.*, 3:58-64 (emphasis added).

The “Detailed Description” in Gu states that “the sounding packets can be limited to a preamble and header, and exclude any data.” *Id.*, 5:11-12 (emphasis added). The inclusion of a “header” in these sounding packets is consistent with Gu’s earlier statements (i) that Gu’s method operates only at the MAC layer, and (ii) that the MAC header (which includes the receiver address) applies for any MAC layer packet. *Id.*, 2:4-5 and 3:61-64 (emphasis added).

Without supporting evidence, the Petition argues that Gu was referring to PHY packets lacking a receiver address⁵ when stating that “the sounding packets can be limited to a preamble and header, and exclude any data.” However, there is no evidence in Gu (or elsewhere with the Petition) that the quoted passage from Gu’s Detailed Description was referring to PHY packets without a receiver address. This reading of Gu is unsupported for at least the following reasons.

⁵ See, e.g., Pet., at 48 (“Gu expressly teaches that the sounding packets can be PHY packets that are limited to a preamble and header without data. See, e.g., UBIQUITI-1007, 5:11-12 (“For example, the sounding packets can be limited to a preamble and a header, and exclude any data.”). A POSITA would have understood that a PHY packet without data would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address”) (emphasis added).

First, the subject passage from Gu makes clear that “the sounding packets” will at a minimum include “a preamble and header,” and the only header described in Gu is the MAC header 110 (which includes the receiver address 113). Gu makes no mention of a “PHY header” at all, let alone a PHY header that would “not include a MAC portion, which is the portion of the packet that included the receiver address,” as argued in the Petition.

Second, the subject passage of Gu only speaks of excluding “data” -- and there is no statement in Gu that the “receiver address” constitutes “data” within the context of the cited passage. For example, Gu could well have been referring to a MAC layer packet that included a MAC header (with the receiver address) but not a payload (which would be the “excluded data”). See UBIQUITI-1010, §7 Frame Formats (at 49) (“The format of MAC frames is specified in this clause”); §7.2.2 Data Frames (at 60) (“The frame body is null (0 octets in length) in data frames of Subtype Null function (no data)”).

Third, the Petition’s argument that the subject passage from Gu was referring to PHY packets without a receiver address is inconsistent with the “Summary of the Invention” in Gu. While Gu described conventional sounding packets in the background as being PHY layer packets (*id.*, 2:43-53), the “Summary of the Invention” of Gu made clear that Gu’s method operates only at the MAC layer (and

not the PHY layer). *Id.*, 3:61-64 (emphasis). And Gu makes clear that the MAC header 110 (which includes receiver address 113) applies for any MAC layer packet,

Fourth, the Petition’s argument that the subject passage from Gu was referring to PHY packets without a receiver address is also belied by Gu’s description of PHY packets in the background. There, Gu stated that “[e]ach PHY layer packet is composed [of] two portions: preamble and data.” *Id.*, 2:43-44. Completely absent from Gu’s characterization of a PHY layer packet is any reference to a “header.” It would be illogical to conclude that Gu was talking about PHY packets when stating that “the sounding packets can be limited to a preamble and header,” given Gu’s earlier statement that PHY packets are limited to a preamble and data (and therefore lack a header.)

B. U.S. Patent No. 8,200,164 to Trainin (UBIQUITI-1011)

Trainin discloses a system and method to establish a wireless communication channel with one or more remote devices. UBIQUITI-1011, Abstract. According to the Petition, Trainin also describes that in a “MIMO (or, beamforming) system a data signal is modified by a beamforming matrix” that is “developed from information . . . fed back from a remote receiver.” Pet., at 33 (citations omitted).

VII. THE PETITION FAILS TO DEMONSTRATE A REASONABLE LIKELIHOOD OF SUCCESS ON THE MERITS

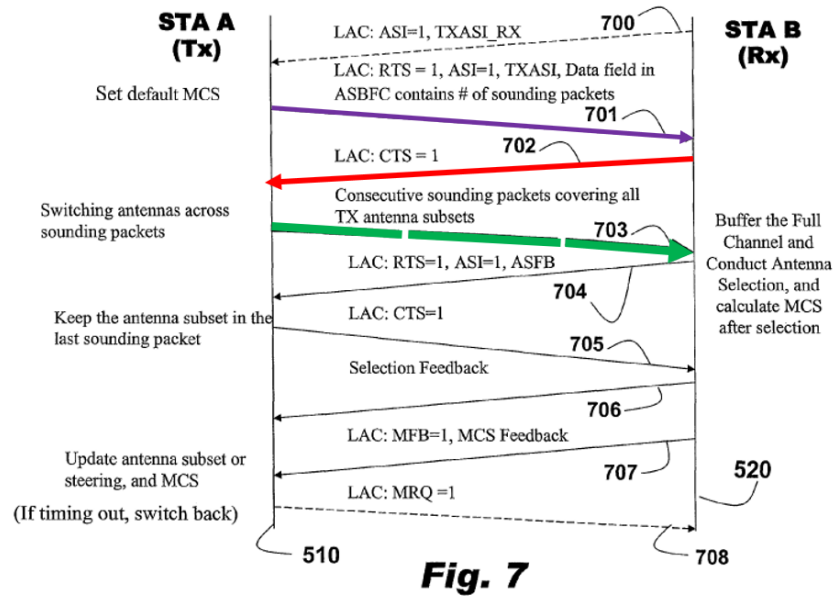
A. Ground 1A Does Not Have A Reasonable Likelihood Of Success

The Petition fails to demonstrate a reasonable likelihood of success in challenging the validity of the claims at issue, as it fails to prove that the cited references disclose all limitations of the claims. First, the Petition fails to demonstrate that Gu discloses a second communication frame that follows immediately after a short interframe space (SIFS) without an intervening response, as required by the claims. Second, the Petition does not establish that Gu discloses the negative limitation requiring the second communication frame to lack the address of the second station, or that Gu discloses a first communication frame that includes an “indication” that the second communication will not include the address of the second station. Third, the “print matter” argument in the Petition has no merit. These deficiencies will be analyzed in detail in the following sections.

1. Gu Fails To Disclose A Second Communication Frame That Follows After A Short Interframe Space (SIFS) After The First Communication Frame With The Transmit Announcement Indication

In connection with Figure 7 of Gu (reproduced below with coloring added by Patent Owner), the Petition maps the “first communication frame” transmitted “from a first station to a second station” in claim 1 to signal 701 [purple line], which is a LAC frame transmitted from station 510 (STA A) to station 520 (STA B), and the

Petition maps “the second communication frame that follows after a short inter frame space (SIFS) are the first first communication frame” in claim 1 to the sounding packets 703 (green line) sent from from station 510 (STA A) to station 520 (STA B). Pet., 43, 47.



Signal 701 [purple line] and sounding packets 703 (green line) do not map to the first and second communication frames, respectively, recited in claim 1, because there is an intervening response 702 (red line) between signal 701 (mapped to the “first communication frame”) and signal 703 (mapped to the “second communication frame.”)

As explained in detail in Section V, *supra*, based on the intrinsic record, the claim limitation reciting that “the second communication frame follows after a short inter frame space (SIFS) after the first communication frame,” means that the second

communication frame follows substantially immediately after the first communication frame without any intervening response to the first communication frame. The mappings in Figure 7 of Gu fail to meet this claim requirement because there is an intervening response 702 between signals 701 and 703 (mapped to the first and second communication frames, respectively.)

2. Gu Fails To Disclose That The Second Communication Frame Does Not Include The Address Of The Second Station

Claim 1 also requires the negative limitation “that the second communication frame will not include the address of the second station.” Petitioner relies on Gu for this negative limitation. To satisfy its burden, Petitioner must prove either that Gu expressly discloses that the second communication frame does not include the address of the second station, or that it is inherent in Gu that the second communication frame does not include the address of the second station. This burden cannot be satisfied if the reference is merely silent with respect to the limitation. As explained in *IBM v. Iancu*, 759 Fed. Appx. 1002 (Fed Cir. 2019) (non-precedential):

The overall finding that this portion of Mellmer teaches a process involving only one user authentication action is not supported by substantial evidence. To begin with, even if the Board were correct that Mellmer is “silent” about the content of the accessCard, that characterization would not alone support a finding that there was no user authentication action in this scenario if, as appears, the Board meant that it simply could not tell one way or the other whether the accessCard contains credentials. Silence in that sense would not by itself suffice for the Petitioner to meet its burden to prove, by a

preponderance of the evidence, that there was no user authentication action in this scenario. See 35 U.S.C. § 316(e). Nor would that burden be met merely by adding a finding that IBM did not prove the opposite, i.e., a finding of “the absence of sufficient evidence showing the provision or validation of a set credentials at the partner site” in this scenario. (emphasis added).

See also, *Snap v. Vaporstream, Inc.*, 2019 Pat. App. LEXIS 13226, IPR2018-00398, Paper #36 (P.T.A.B. 2019) (routine opinion) (citing *IBM* and stating “Petitioner’s position in this proceeding is that Wren teaches the separation of header information and message content because there is no message content in Figure 9A. Wren’s silence as to what the “New Movie” text represents and where it originated is insufficient for Petitioner to prove that it is not message content”); *Google v. Geoscope Technologies PTE. Ltd.*, 2024 Pat. App. LEXIS 666, IPR2023-01214, Paper #12 (P.T.A.B. 2024) (routine opinion) (citing *IBM* and stating “Petitioner bears the burden of demonstrating a reasonable likelihood of prevailing in demonstrating that Almgren discloses or teaches all the claim limitations at issue, and, specifically, the burden extends to negative limitations.”)

The Petition relies solely on Gu for the negative limitation requiring “that the second communication frame will not include the address of the second station.” However, it is undisputed that Gu is devoid of any express statement that its sounding frame (mapped to the “second communication frame”) does not include an address. Instead, the Petition asserts that a POSITA “would have understood” Gu’s teaching that “the sounding packets can be limited to a preamble and header, and

exclude any data” (Gu., 5:11-12) to mean that Gu’s sounding packet is “a PHY packet without data [that] would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address.” Pet., 48. As illustrated below, Petitioner’s “interpretation” represents a significant leap from what Gu actually says:

<u>Actual Statement From Gu</u>	<u>Petitioner’s Interpretation Of Statement</u>
“[T]he sounding packets can be limited to a preamble and header, and exclude any data.” Gu, 5:11-12.	Gu’s sounding packet is “a PHY packet without data [that] would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address.” Pet., 48.

Given that Gu is devoid of an affirmative statement that its sounding packet does not include an address, Petitioner must show that its “interpretation” of Gu is inherent (or necessarily present) in Gu. Significantly, “[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency.” *Par Pharm., Inc. v. TWi Pharm., Inc.*, 773 F.3d 1186, 1194-95 (Fed. Cir. 2014). Rather, “the limitation at issue necessarily must be present in order to be inherently disclosed by the reference.” *Southwire Co. v. Cerro Wire LLC*, 870 F.3d 1306, 1310-11 (Fed. Cir. 2017). Petitioner has not demonstrated that it is inherent in Gu’s teaching that “the sounding packets can be limited to a preamble and header, and exclude any data” (Gu, 5:11-12) that Gu’s sounding packet is “a PHY packet without data [that] would include a PHY header but not include a MAC portion,

which is the portion of the packet that included the receiver address.” Pet., 48. On the contrary, the Petition has not provided any substantial evidence that Gu’s statement about sounding packets means what Petitioner says.

a) The Text of Gu Does Not Support Petitioner’s Interpretation Of The Reference

As explained initially in Section VI(A)(2), *supra*, and further below, the actual text of Gu does not support Petitioner’s “interpretation” of Gu for several reasons:

First, the passage relied on describing Gu’s sounding packets (Gu, at 5:11-12) makes clear that “the sounding packets” *will* at a minimum include “a preamble and header,” and the only header described in Gu is the MAC header 110 (which includes the receiver address 113).

Second, the subject passage of Gu only speaks of excluding “data” -- and there is no statement in Gu that the “receiver address” constitutes “data” within the context of the cited passage. For example, Gu could well have been referring to a MAC layer packet that included a MAC header (with the receiver address) but not a payload (which would be the “excluded data”). See UBIQUITI-1010, §7 Frame Formats (at 49) (“The format of MAC frames is specified in this clause”); §7.2.2 Data Frames (at 60) (“The frame body is null (0 octets in length) in data frames of Subtype Null function (no data)”).

Third, the Petition’s argument that the subject passage from Gu was referring to PHY packets without a receiver address is belied by the “Summary of the

Invention” in Gu. While Gu described conventional sounding packets in the background as being PHY layer packets (UBIQUITI-1007, 2:43-53), the “Summary of the Invention” of Gu made clear that Gu’s method operates only at the MAC layer (and not the PHY layer). *Id.*, 3:61-64 (emphasis). And Gu makes clear that the MAC header 110 (which includes receiver address 113) applies for any MAC layer packet,

Fourth, the Petition’s argument that the subject passage from Gu was referring to PHY packets without a receiver address is also inconsistent with Gu’s description of PHY packets in the background. There, Gu stated that “[e]ach PHY layer packet is composed [of] two portions: preamble and data.” *Id.*, 2:43-44. Completely absent from Gu’s characterization of a PHY layer packet is any header. It would be illogical to conclude that Gu was talking about PHY packets when stating that “the sounding packets can be limited to a preamble and header,” given Gu’s earlier statement that PHY packets are limited to a preamble and data.

Finally, in an effort to get around what Gu actually says, i.e., that “[e]ach PHY layer packet is composed [of] two portions: preamble and data” (*id.*, 2:43-44), the Petition includes a section entitled “Background of the Technology” which characterizes a physical layer data unit as including a “(PLCP) Preamble and Header.” Pet., 6-7. In support, the Petition cites UBIQUITI-1010, which is an early version of 802.11 dated in 1999. Gu was filed in 2005, and incorporated by reference a different version of the standard referred to by Gu as 802.11n. UBIQUITI-1007, 1:57-58 (“the

WLAN IEEE802.11n standard, incorporated herein by reference,") 2:32, 36.⁶ Significantly, UBIQUITI-1010 does not mention 802.11n, nor does the Petition represent that UBIQUITI-1010 corresponds to 802.11n. Furthermore, Petitioner's expert has not explained why he is relying on a version of 802.11 other than the one mentioned in Gu. In the context of attempting to demonstrate that a feature is *inherent in Gu*, it is improper for Petitioner to rely on a version of the 802.11 standard that is *different* from the one specifically referenced by Gu.

For the reasons outlined above, the Petitioner's interpretation of Gu is unsupported by the actual text of the reference. The cited passages from Gu fail to establish that Gu's sounding packets lack a receiver address, as argued by Petitioner. Furthermore, Petitioner's reliance on a version of the 802.11 standard other than the 802.11n standard expressly incorporated by Gu is both improper and irrelevant. Accordingly, the Petitioner has not met its burden of demonstrating that "the second communication frame" in Gu "with not include the address of the second station," as claimed.

⁶ See UBIQUITI-1003, ¶67 (acknowledging that "Gu was filed within the context of the development of the 802.11n standards.")

b) Petitioner's Citations Fail To Support Petitioner's Interpretation of Gu

The Petition includes three citations (underlined and italicized below) in an effort to support its argument that Gu's sounding packets lacked a receiver address.

From the Petition:

... Gu expressly teaches that the sounding packets can be PHY packets that are limited to a preamble and header without data. *See, e.g., UBIQUITI-1007, 5:11-12* ("For example, the sounding packets can be limited to a preamble and a header, and exclude any data."). A POSITA would have understood that a PHY packet without data would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address. *See, e.g., UBIQUITI-1010, §7.3.3.6; see also, UBIQUITI-1007, FIGS. 1, 5C; UBIQUITI-1003, 104-107; see also UBIQUITI-1001, 4:57-60* (describing a "PHY header without MAC portion . . . may also be referred to as a zero-length frame or Null Data Packet (NDP)). First, because Gu already alerts the second station of sounding, an address is not needed in the sounding packets. UBIQUITI-1003, 104-107. Pet., 48 (emphasis added).

None of the emphasized citations provide support for what Petitioner is required to prove, namely, that it is *inherent* in Gu's statement that "the sounding packets can be limited to a preamble and header, and exclude any data" (UBIQUITI-1007, 5:11-12) that Gu's sounding packet is "a PHY packet without data [that] would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address." Pet., 48.

The first citation is to UBIQUITI-1010, §7.3.3.6. However, *there is no §7.3.3.6* in UBIQUITI-1010. *See, UBIQUITI-1010, at 73-74* (in UBIQUITI- 1010, §7.3.2.8 is followed by §8 - without any §7.3.3.6 in between).

The second citation is to Figures 1 and 5C of Gu (UBIQUITI-1007). Both of these figures in Gu depict a frame with MAC header 110 that includes the receiver address 113. Neither of these figures remotely suggests that Gu's sounding packet is a PHY packet that "would include a PHY header but not include a MAC portion ... that included the receiver address." Pet., 48.

The third citation (UBIQUITI-1001, 4:57-60) is to the Detailed Description of the '122 Patent - which is not prior art and not evidence of what would have been understood by a POSITA. Petitioner cannot use the Detailed Description of the '122 Patent to prove what was inherent in Gu.

As a result, none of Petitioner's citations establish that Gu's sounding packets inherently lack a receiver address or MAC portion. The first citation, UBIQUITI-1010, §7.3.3.6, does not exist, undermining its probative value entirely. The second citation to Figures 1 and 5C of Gu depicts frames with a MAC header, including a receiver address, directly contradicting the Petitioner's argument. Finally, the third citation to UBIQUITI-1001 is from the Detailed Description of the '122 Patent, which is not prior art and cannot serve as evidence of what was inherent in Gu. Therefore, the Petitioner's interpretation is unsubstantiated and inconsistent with the cited materials, further demonstrating that the Petitioner has not met their burden.

**c) The Conclusory Statements of Petitioner's Expert
Should Be Afforded No Weight**

When arguing a feature naturally flows from the technology, some evidence, apart from conclusory statements, must be offered in support. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355 (Fed. Cir. 2016). This is particularly true when conclusory statements in an IPR petition are merely supported by the identical conclusory statements in Petitioner's expert declaration. In such circumstances, the expert's declaration should be given little, if any, weight. *See, Facebook v. Windy City Innovations, LLC*, 973 F.3d 1321, 1340-41 (Fed. Cir. 2020) ("affirming the Board's finding that claim was not unpatentable when "the Board considered Facebook's expert's testimony but determined that it did not add materially to Petitioner's unpersuasive attorney argument," because it merely repeated Petitioner's argument, nearly verbatim, without citation to the basis for his testimony); *Acoustic Tech., Inc. v. Itron Networked Sols., Inc.*, 949 F.3d 1366, 1375 (Fed. Cir. 2020) ("conclusory expert testimony and attorney argument cannot constitute substantial evidence"); IPR2022-00624, Director Review Decision, Paper #12, February 10, 2023 (finding that "the Board was correct in giving little weight to Petitioner's expert because the expert declaration merely offered conclusory assertions without underlying factual support."). These cases collectively indicate that expert testimony in patent disputes must include independent, reasoned analysis and cannot merely reiterate the Petitioner's arguments or present conclusory opinions devoid of

evidentiary support. The Federal Circuit has “underscored that the expert’s conclusory statements and unspecific expert testimony d[o] not qualify as substantial evidence that could support the Board’s conclusions regarding obviousness.” *TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352, 1360-61 (Fed. Cir. 2019).

Here, Petitioner’s expert offers nothing beyond conclusory statements to support Petitioner’s argument that Gu’s sound packet is “a PHY packet without data [that] would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address.” Petitioner’s expert simply parrots the language of the Petition and provides no reasoned analysis to support its statements. Set forth below is a side-by-side comparison of the assertions about Gu’s sounding packet made in the Petition, and the corresponding statements from the declaration of Petitioner’s expert:

Statement From Petition	Corresponding Statement In Expert Declaration (UBIQUITI-1003)
Gu describes that “the sounding packet can be limited to a preamble and header, and exclude any data” so as to “decrease the time required for sounding” by minimizing the size of the sounding packet. <i>Id.</i> , 5:9-12. A POSITA would have understood that the absence of data in the sounding packet meant that the sounding packet did not include an address for the receiver because it would include no MAC frame containing addresses. (Pet., 28).	Gu describes that “the sounding packet can be limited to a preamble and header, and exclude any data” so as to “decrease the time required for sounding” by minimizing the size of the sounding packet. <i>Id.</i> , 5:9-12. A POSITA would have understood that the absence of data in the sounding packet meant that the sounding packet did not include an address for the receiver because it would include no MAC frame

	containing addresses. (UBIQUITI-1003, ¶70).
Gu expressly teaches that the sounding packets can be PHY packets that are limited to a preamble and header without data. <i>See, e.g.</i> , UBIQUITI-1007, 5:11-12 (“For example, the sounding packets can be limited to a preamble and a header, and exclude any data.”). A POSITA would have understood that a PHY packet without data would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address. <i>See, e.g.</i> , UBIQUITI-1010, §7.3.3.6; <i>see also</i> , UBIQUITI-1007, FIGS. 1, 5C ... (Pet., 48).	Gu expressly teaches that the sounding packets can be PHY packets that are limited to a preamble and header without a data portion. <i>See, e.g., id.</i> , 5:11-12 (“For example, the sounding packets can be limited to a preamble and a header, and exclude any data.”). A POSITA would have understood that a PHY packet without data would include a PHY header but not include a MAC portion or MPDU, which is the part of the packet that would contain the receiver address. <i>See, e.g.</i> , 802.11-1999, §7.3.3.6; <i>see also</i> , Gu, FIGS. 1, 5C; ... (UBIQUITI-1003, ¶105).

The conclusory statements of Petitioner’s expert are not substantial evidence that it is *inherent* in Gu’s statement that “the sounding packets can be limited to a preamble and header, and exclude any data” (Gu, 5:11-12) that Gu’s sounding packet must necessarily be “a PHY packet without data [that] would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address.” Even if the allegations of Petitioner’s expert were sufficient to show that Gu’s sounding packet *could* have been implemented as “a PHY packet without data [that] would include a PHY header but not include a MAC portion, which is the portion of the packet that included the receiver address,” the statements

of Petitioner's expert fall short of demonstrating that Gu's sounding packet must have been implemented that way.

For the above reasons, the Petition has failed to demonstrate that the negative limitation reciting "that the second communication frame will not include the address of the second station" is met either expressly or inherently by Gu.

3. Gu Does Not Teach "The First Communication Frame Comprises ... A Transmit Announcement Indication Indicating ... That The Second Communication Frame Will Not Include The Address Of The Second Station"

Claim 1 recites that "the first communication frame comprises ... a transmit announcement indication indicating that a second communication frame intended for the second station will follow the first communication frame and that the second communication frame will not include the address of the second station." Thus, the transmit announcement indication must indicate two pieces of information: (i) it must indicate that a second communication frame intended for the second station will follow the first communication frame, and (ii) it must indicate that the second communication frame will not include the address of the second station. A transmit announcement indication that does not indicate that the second communication frame will not include the address of the second station fails to meet the claim language.

The Petitioner allege that Gu’s “ASI” bit teaches the “transmit announcement indication.” Pet. at 45 (“[t]he transmit announcement indication is the ASI field 127.”) Gu describes the ASI bit as “as antenna/beam selection indicator (ASI).” UBIQUITI-1007, 6:13:14, FIG. 5C; *see also, id.*, 6:11-18 (describing the function of the ASI bit). The Petition fails to identify any express statement in Gu that, when the ASI bit is set to a particular value, this “indicates” that a subsequent frame intended for the receiving station will not include the address of the second station. No such statement exists in Gu.

Assuming, *arguendo*, that Gu’s example that “the sounding packets can ... exclude any data” (at 5:11-12) equated to the omission of a receiver address from the sounding packet (which the Petition has failed to show), it is undisputed that Gu does not state that sounding packet will always “exclude any data.” Rather, Gu discloses that its sounding packets can also include data. Ex. 1007, 8:50-53 (“While transmitting sounding packets with data for antenna/beam selection training, the transmitter switches to different antenna subsets for each consecutive sounding packet”); 3:58-61 (“The sounding packets, in addition to training the MIMO channel for selecting antennas/beams, can also include data which makes the method extremely efficient because training and data transfer is performed concurrently.”) (emphasis added). Thus, Gu transmits sounding packets both with or without data.

The Petition maps Gu’s “ASI=1” to the claimed transmit announcement. The information conveyed by “ASI =1” is only that some sounding packet will be forthcoming. However, as explained above, Gu transmits sounding packets both with or without data. Lacking from the information conveyed by “ASI=1” is any information whether the forthcoming sounding packet will be one with data or one without data. See UBIQUITI-1007, 6:11-14 (“if the ASI field 127 is set to 1, then field 130 is used for antenna/beam selection/transmitter beam forming control (ASBFC) 600 [and] otherwise the use of field 130 is conventional.”) In other words, since Gu’s ASI field is only a single bit, it can at most indicate whether or not a sounding packet is forthcoming and cannot convey additional information indicating whether or not the forthcoming sounding packet will include or exclude data. Thus, even if Gu’s exclusion of data from the sounding packet equated to the omission of a receiver address from the sounding packet (which the Petition has failed to show), the Petition has failed to demonstrate that Gu’s ASI=1 bit itself indicates that the forthcoming sounding packet will lack a receiver address, as claimed.

4. Petitioner’s “Printed Matter” Argument Must Be Rejected

The Petitioner’s assertion that the “indication” in elements 1.2 and 1.3 constitutes printed matter without relevance to patentability misapplies the Federal Circuit’s printed matter doctrine. This doctrine, as clarified in *IOENGINE, LLC v.*

Ingenico Inc., 100 F.4th 1395, 1404 (Fed. Cir. 2024) and related precedent, involves a two-step analysis to determine whether a claim limitation qualifies as printed matter and, if so, whether it should nonetheless be afforded patentable weight. The Federal Circuit distinguishes between limitations that merely convey information for human cognition and those that require machine processing, creating new functionality within the claimed system. Here, the transmission of a communication frame from one station to another with the recited indication necessitates machine processing and generates a functional transformation in the system's operation. Consequently, the limitations at issue do not meet the criteria for printed matter under the first step, and even if they did, their functional relationship to the claimed system warrants patentable weight.

Under the two-part test, the Court first “determine[s] whether the limitation in question is directed toward printed matter” and “[o]nly if the limitation in question is determined to be printed matter do[es] [the Court] proceed to the second step, which asks “whether the printed matter nevertheless should be given patentable weight.” *IOENGINE*, 100 F.4th 1395, 1405. This test distinguishes “claims defining as the invention certain novel arrangements of printed lines or characters, useful and intelligible only to the human mind” from claims that “require[] that the information be processed not by the mind but by a machine. *In re Bernhart*, 417 F.2d 1395, 1399 (CCPA 1969). Under the two-step test, the claimed limitations requiring machine

processing of information should be accorded patentable weight, as they transcend the mere presentation of information for human cognition.

For example, *In re Lowry* the Court stated that “[t]he printed matter cases have no factual relevance where the invention as defined by the claims requires that the information be processed not by the mind but by a machine, the computer.” *In re Lowry*, 32 F.3d 1579, 1583 (Fed. Cir. 1994) (internal citation omitted). The Court held that “[t]he printed matter cases have no factual relevance” because “Lowry’s data structures, which according to Lowry greatly facilitate data management by data processing systems, are processed by a machine “and “are not accessible other than through sophisticated software systems.” *Id.*, 1583

In contrast, the Court has held that “an FDA label providing dosage instructions for using a medical product ... a label instructing a patient to take a drug with food ... instructions on how to perform a DNA test ..., and numbers printed on a wristband are printed matter.” *IOENGINE*, 100 F.4th 1395, 1404-1405. In reaching this conclusion, the Court “considered whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process.” *C R Bard Inc. v. Angiodynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020).

Here, “transmitting a first communication frame from a first station to a second station” with the claimed indication bears no resemblance to providing instructions that merely inform a person on how to take a drug or perform a test. Instead, the alleged printed matter is inaccessible to humans, can only be processed by a machine, and creates new functionality in the wireless communication system. Therefore, the challenged claims do not contain printed matter under the first step of the test.

Even assuming *arguendo* that the claimed “indication” contained printed matter, the alleged printed matter changes the function of the claimed system and, therefore, should be afforded patent weight. The Federal Circuit explained that the “doctrine prohibits patenting such printed matter unless it is “functionally related” to its “substrate,” which encompasses the structural elements of the claimed invention” *C R Bard*, 979 F.3d 1372, 1381. Specifically, the Court explained that “the critical question is whether there exists any new and unobvious functional relationship between the printed matter and the substrate.” *In re Gulack*, 703 F.2d 1381, 1386 (Fed. Cir. 1983).

Here, “transmitting a first communication frame from a first station to a second station” functionally changes how the first and second stations communicate with each other. Therefore, even if the challenged claims involve printed matter, the functional relationship between the alleged printed matter and the claimed system’s

structural elements—specifically, the transmission of communication frames that alter the interaction between the stations—warrants awarding the claim elements patentable weight.

As a result, Petitioner’s argument that the “indication” is unavailing. Under the two-step test for the printed matter doctrine, the claimed limitations here are not directed to printed matter because they require machine processing of information, creating functionality within the wireless communication system. Moreover, even if the claims involved printed matter, the functional relationship between the alleged printed matter and the structural elements of the claimed system—namely, the transmission of communication frames that alter the stations’ interactions—creates new functionality that meets the threshold for patentable weight.

Thus, Petitioner’s printed matter argument should be rejected.

5. Ground 1A Fails To Demonstrate A Reasonable Likelihood Of Success With Respect To Independent Claims 16, 27 and 38

As set forth in Sections VII(A)(1) - (4) above, the Petition has failed to demonstrate that the relied on references meet the limitations of claim 1 requiring: (i) that “the second communication frame follows after a short inter frame space (SIFS) after the first communication frame,” (ii) “that the second communication frame will not include the address of the second station.” These limitations correspond to elements [1.3] and [1.4] as identified in the Petition.

Independent claim 16 recites elements [16.3] and [16.4], which are substantially the same as elements [1.3] and [1.4]. For elements [16.3] and [16.4] in Ground 1A, the Petition simply cross-references its previous arguments for elements [1.3] and [1.4]. Pet., 60. For the same reasons set forth in Sections VII(A)(1)-(4) above, the Petition has failed to demonstrate that elements [16.3] and [16.4] are met by the cited references.

Independent claim 27 recites elements [27.3] and [27.4], which are substantially the same as elements [1.3] and [1.4]. For elements [27.3] and [27.4] in Ground 1A, the Petition cross-references its previous arguments for elements [1.3] and [1.4]. Pet., 65-66. For the same reasons set forth in Sections VII(A)(1)-(4) above, the Petition has failed to demonstrate that elements [27.3] and [27.4]⁷ are met by the cited references.

Independent claim 38 recites elements [38.3] and [38.4] which are substantially the same as elements [1.3] and [1.4]. For elements [38.3] and [38.4] in Ground 1A, the Petition cross-references its previous arguments for elements [1.3]

⁷ In addition to cross-referencing its argument from element [1.4], the Petition makes an alternative argument with respect to element [27.4]. See Pet., 66 (“In addition, or in the alternative, under a narrower construction of RTS frame, the Gu-Trainin combination teaches the RTS+HTC frame is received by the second station.”) However, this alternative mapping fails to meet the claim language because it includes an intervening transmission by the second station (i.e., a “CTS+HTC frame”) between the first and second communication frames transmitted by the first station.

and [1.4]. Pet., 68. For the same reasons set forth in Sections VII(A)(1)-(4) above, the Petition has failed to demonstrate that elements [38.3] and [38.4] are met by the cited references.

6. Ground 1A Fails To Demonstrate A Reasonable Likelihood Of Success With Respect To Dependent Claims 4-5, 17-20, 22-26, 28-30 and 39-41

Claims 4-5 and 22-26 depend from independent claim 1. Since the Petition failed to demonstrate a likelihood of success with respect to independent claim 1 under Ground 1A (*see*, Section VII(A)(1)-(4)), the Petition has also failed to demonstrate a likelihood of success with respect to dependent claims 4-5 and 22-26 under Ground 1A.

Claims 17-20 depend from independent claim 16. Since the Petition failed to demonstrate a likelihood of success with respect to independent claim 16 under Ground 1A (*see*, Section VII(A)(3)), the Petition has also failed to demonstrate a likelihood of success with respect to dependent claims 17-20 under Ground 1A.

Claims 28-30 depend from independent claim 27. Since the Petition failed to demonstrate a likelihood of success with respect to independent claim 27 under Ground 1A (*see*, Section VII(A)(3)), the Petition has also failed to demonstrate a likelihood of success with respect to dependent claims 28-30 under Ground 1A.

Claims 39-41 depend from independent claim 38. Since the Petition failed to demonstrate a likelihood of success with respect to independent claim 38 under

Ground 1A (*see*, Section VII(A)(3)), the Petition has also failed to demonstrate a likelihood of success with respect to dependent claims 39-41-20 under Ground 1A.

B. Ground 1B Does Not Have A Reasonable Likelihood Of Success

Ground 1B challenges dependent claims 6-8 (which depend directly or indirectly from claim 1) and dependent claims 31-33 (which dependent directly or indirectly from claim 27). Ground 1B does not state how the limitations of the base claims (e.g., claim 1 in the case of dependent claims 6-8 or claim 27 in the case of claims 31-33) are being mapped to the cited references. In this respect, Ground 1B is deficient. To the extent Ground 1B intended to rely on the mappings from Ground 1A for the limitations of base claims 1 and 27, Ground 1B fails to present a reasonable likelihood of success because, as explained in Sections VII(A)(1)-(5) above, the Petition failed to demonstrate a likelihood of success with respect to claims 1 and 27 in Ground 1A.

C. Ground 1C Does Not Have A Reasonable Likelihood Of Success

Ground 1C challenges claims 11-15, 21, 34-37 and 42.

1. The Petition Has Failed To Demonstrate A Reasonable Likelihood Of Success With Respect To Claims 11-15 and 34-37 Under Ground 1C

Independent claim 11 recites elements [11.3] and [11.4] which are substantially the same as elements [1.3] and [1.4]. For elements [11.3] and [11.4] in Ground 1A, the Petition cross-references its previous arguments for elements [1.3]

and [1.4]. Pet., 82. For the reasons set forth in Sections VII(A)(1)-(4) above, the Petition has failed to demonstrate that elements [11.3] and [11.4] are met by the cited references.

Claims 12-15 depend from claim 11. Since the Petition failed to demonstrate a likelihood of success with respect to independent claim 11 under Ground 1C, the Petition has also failed to demonstrate a likelihood of success with respect to dependent claims 12-15 under Ground 1C.

Independent claim 34 recites elements [34.3] and [34.4] which are substantially the same as elements [1.3] and [1.4]. For elements [34.3] and [34.4] in Ground 1A, the Petition cross-references its previous arguments for elements [1.3] and [1.4], as well as [11.3]-[11.4] and [27.3]-[27.4]. Pet., 85. For the reasons set forth in Sections VII(A)(1)-(5) above, the Petition has failed to demonstrate that elements [34.3] and [34.4] are met by the cited references.

Dependent claims 36-37 depend from claim 34. Since the Petition failed to demonstrate a likelihood of success with respect to independent claim 34 under Ground 1C, the Petition has also failed to demonstrate a likelihood of success with respect to dependent claims 36-37 under Ground 1C.

2. The Mapping Of Claim 21 In Ground 1C Is Deficient

Claim 21 depends from claim independent claim 16. However, rather than referring to claim 16 as the base claim for dependent claim 21, the Petition applies

its previous mapping for independent claim 11 (from Ground 1C) to claim 21. Pet., 84. For this reason, the mapping of claim 21 in Ground 1C is deficient. To the extent that the Petition intended to apply its mapping for claim 16 from Ground 1A to claim 21 in Ground 1C, the mapping for claim 21 in Ground 1C would still fail because, as explained in Section VII(A)(5), the Petition failed to demonstrate a likelihood of success with respect to independent claim 16 under Ground 1A.

3. The Mapping Of Claim 42 In Ground 1C Is Deficient

Claim 42 depends from claim independent claim 38. However, rather than referring to claim 38 as the base claim for dependent claim 42, the Petition applies its previous mapping for independent claim 11 (from Ground 1C) to claim 42. Pet., 87. For this reason, the mapping of claim 42 in Ground 1C is deficient. To the extent that the Petition intended to apply its mapping for claim 38 from Ground 1A to claim 42 in Ground 1C, the mapping for claim 42 in Ground 1C would still fail because, as explained in Section VII(A)(5), the Petition failed to demonstrate a likelihood of success with respect to independent claim 38 under Ground 1A.

VIII. CONCLUSION

For the above reasons, Patent Owner respectfully requests that the Board deny institution of the Petition.

Respectfully submitted,

Dated: December 11, 2024

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CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Patent Owner Preliminary Response complies with the type-volume limits of 37 C.F.R. § 42.24(b)(1) because it contains 13,980 words, excluding the parts of this Patent Owner's Preliminary Response that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used to prepare this Patent Owner's Preliminary Response.

Respectfully submitted,

Dated: December 11, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** was served via email (as consented to by counsel) on December 11, 2024 to lead and backup counsel of record for Petitioners as follows:

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