

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**ATLAS GLOBAL TECHNOLOGIES  
LLC**

**Plaintiff,**

**v.**

**ZYXEL NETWORKS CORPORATION,  
ZYXEL COMMUNICATIONS  
CORPORATION.,**

**Defendants.**

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**ATLAS GLOBAL TECHNOLOGIES  
LLC**

**Plaintiff,**

**v.**

**D-LINK CORPORATION.,**

**Defendant.**

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**Civil Action No. 6:22-cv-00355-ADA**

**Jury Trial Requested**

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**Civil Action No. 6:22-cv-00520-ADA**

**Jury Trial Requested**

**PLAINTIFF'S RESPONSIVE CLAIM CONSTRUCTION BRIEF**

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## **I. INTRODUCTION**

Atlas’s constructions are supported by both intrinsic and extrinsic evidence and are consistent with the canons of claim construction. Defendants’ constructions, conversely, attempt to avoid liability by (1) reading limitations from the specifications into the claims or (2) relying on attorney argument and a conclusory expert declaration to inject confusion into facially clear claim language in a shot at indefiniteness. The Court should adopt Atlas’s constructions and reject Defendants’ overly restrictive interpretations and indefiniteness arguments.

## **II. LEGAL PRINCIPLES OF CLAIM CONSTRUCTION**

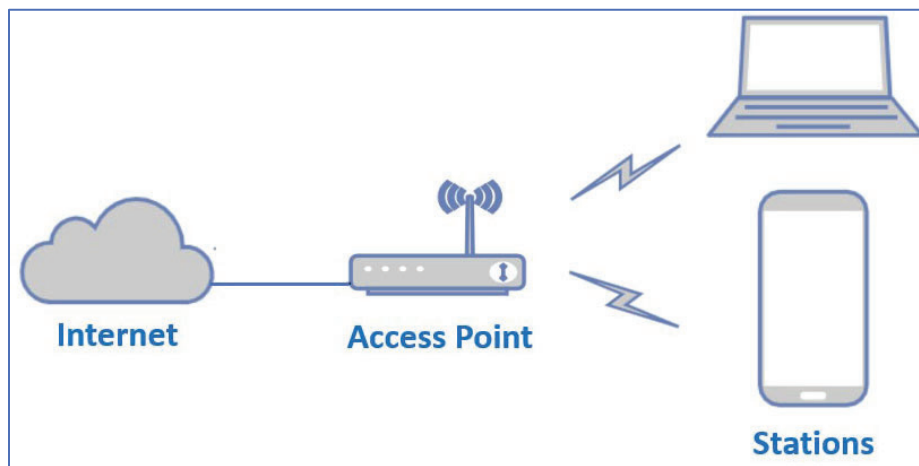
Claim terms are construed according to their plain and ordinary meaning—that is, the “meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” after having read the intrinsic record. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). A claim term is indefinite only if, when “read in light of the specification” and “prosecution history,” it “fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). The “inherent limitations of language” make some “modicum of uncertainty” the “price of ensuring the appropriate incentives for innovation.” *Id.* at 909.

## **III. OVERVIEW OF PATENTED TECHNOLOGY**

These two lawsuits involve nine patents covering various aspects of Wi-Fi 6, the current and most advanced version of Wi-Fi based on the IEEE 802.11ax standard. Defendants make, use, and sell infringing Wi-Fi 6 devices. To promote its devices, D-Link touts that its products include “Wi-Fi 6 (802.11ax) technology [that] provides faster speeds, greater capacity, and less network congestion.” PX A (AX1500 Wi-Fi 6 Router) at ATLAS-DLINK-00000127; *see also* PX B (D-Link Wi-Fi 6 Whitepaper) at ATLAS-DLINK-00000353-367. Similarly, Zyxel calls Wi-Fi 6 “a

true game changer” because it “offers a significant step forward in the speeds and capacity of WiFi services in environments crowded with connected devices, even during peak hours.” PX C (Zyxel WiFi 6 Solutions) at ATLAS-ZYXEL-00000294; *see also* PX D (Zyxel Wi-Fi AP Solution) at ATLAS-ZYXEL-00000289 (“With Wi-Fi 6 there is no contention, no waiting, no degradation in performance.”).

Wi-Fi 6 networks generally include two types of devices: (1) Access Points (“APs”) that provide wireless access to the Wi-Fi 6 network and to external networks, like the Internet; and (2) Stations (“STAs”) that often are mobile devices and connect to an AP for network access:



The Asserted Patents enable numerous features of Wi-Fi 6, including: OFDMA and MU-MIMO (*e.g.*, the '520, '679, '886, and '851); enhanced spatial reuse and BSS coloring (*e.g.*, the '442); multi-user triggering frames and/or acknowledgement frames (*e.g.*, the '738, '513, '919, '520); and channel sounding, estimation, and feedback in multi-user communication (*e.g.*, the '259, '919). These features support key new functionality in Wi-Fi 6, such as simultaneous uplink transmission by multiple users, simultaneous multi-user acknowledgements in response to multi-user transmissions, the ability for adjacent Wi-Fi networks to both operate when interference levels are sufficiently low, the ability to timely estimate channel conditions in multi-user environments, and the ability to optimize frequency diversity in multi-user settings. The Asserted Patents enable

significantly higher network throughput, lower latency, lower power operation, and increase the efficiency of Wi-Fi networks—including in the most demanding high-density, high-usage scenarios.

#### IV. PRIOR CLAIM CONSTRUCTION ORDERS

In the related cases against Sercomm and ASUSTeK, this Court effectively rejected Defendants’ construction for ten out of the twelve groups of disputed claim terms in this case; the Eastern District also ruled consistently in the related case against TP-Link:

1. ’520 “network device term”: This Court construed “network device” to have its “Plain-and-ordinary meaning” and refused to limit a network device to an “access point.” PX E (*Sercomm/ASUS* CC Order) at 19-23 (term #3). As did the Eastern District in the related *TP-Link* case. PX F (*TP-Link* CC Order) at 15-20. Notwithstanding, these Defendants seek a construction that is limited to an “access point.” Dkt. 41 (Op. Br.) at 8-10.

2. ’259 “indicates information corresponding to term”: This Court construed this term as “Not indefinite. Plain-and-ordinary meaning.” PX E (*Sercomm/ASUS* CC Order) at 23-26 (term #4). So did the Eastern District in *TP-Link*. PX F (*TP-Link* CC Order) at 20-24. Notwithstanding, these Defendants argue for indefiniteness. Dkt. 41 (Op. Br.) at 13-14.

3. ’738 “uplink setup information terms”: This Court construed these terms as “Plain-and-ordinary meaning” and refused to limit uplink setup information to “information on the transmission characteristics to be used for a subsequent uplink transmission.” PX E (*Sercomm/ASUS* CC Order) at 31-34 (term #6). The Eastern District did the same. PX F (*TP-Link* CC Order) at 29-32. Notwithstanding, these Defendants effectively seek to limit uplink setup information to information “which would otherwise be in an uplink setup or uplink initiation (ULI) frame” and that is “other than downlink data.” Dkt. 41 (Op. Br.) at 14-15.

4. ’738 “function of space time stream terms”: This Court construed these terms as “Not indefinite. Plain-and-ordinary meaning.” PX E (*Sercomm/ASUS* CC Order) at 26-31 (term #5). As did the Eastern District in *TP-Link*. PX F (*TP-Link* CC Order) at 25-29. Notwithstanding, these Defendants argue for indefiniteness. Dkt. 41 (Op. Br.) at 15-17.

5. ’442 “HE/legacy mode terms”: This Court construed these terms as “Not indefinite. Plain-and-ordinary meaning, wherein the plain-and-ordinary meaning is ‘a mode specified as High Efficiency (HE) by an 802.11 Standard or proposed 802.11 Standard’ / ‘a legacy mode specified in a IEEE 802.11 Standard released prior to 802.11ax standard or proposed standard.’” PX E (*Sercomm/ASUS* CC Order) at 39-45 (term #8). Notwithstanding, these Defendants argue for indefiniteness. Dkt. 41 (Op. Br.) at 17-19.

6. ’442 “when terms”: This Court construed these terms as “Claim 1: Not indefinite. Plain-and- ordinary meaning.<sup>1</sup> 1 – To infringe the claim, the accused product must have the

capability to perform all steps and must perform at least one. Claim 8: Not indefinite. Plain-and-ordinary meaning.” PX E (*Sercomm/ASUS* CC Order) at 45-49 (term #9). Notwithstanding, these Defendants argue for indefiniteness. Dkt. 41 (Op. Br.) at 19-23.

7. ’513 “at least a portion of & associated with terms”: This Court construed these terms as “Not indefinite. Plain-and-ordinary meaning.” PX E (*Sercomm/ASUS* CC Order) at 50-55 (term #10). The Eastern District also held these terms were not indefinite. PX F (*TP-Link* CC Order) at 35-40. Notwithstanding, these Defendants argue for indefiniteness. Dkt. 41 (Op. Br.) at 23-25.

8. ’919 “number of STA fields terms”: This Court construed the independent claims as “Plain-and-ordinary meaning” and the dependent claims as “Not indefinite. Plain-and-ordinary meaning.” PX E (*Sercomm/ASUS* CC Order) at 61-67 (term #12). The Eastern District did the same. PX F (*TP-Link* CC Order) at 49-54. Notwithstanding, these Defendants argue for indefiniteness, or alternatively for very narrow constructions. Dkt. 41 (Op. Br.) at 25-29.

9. ’919 “cardinality terms”: This Court construed these terms as “Plain-and-ordinary meaning” and rejected Defendants’ indefiniteness argument. PX E (*Sercomm/ASUS* CC Order) at 67-68 (term #13). So did the Eastern District. PX F (*TP-Link* CC Order) at 56-58. Notwithstanding, these Defendants argue for indefiniteness. Dkt. 41 (Op. Br.) at 29.

10. ’851 “scheduling extension term”: This Court construed this term as “Plain-and-ordinary meaning wherein the plain-and-ordinary meaning is “an extension to the control field that includes scheduling information” and rejected Defendants’ construction requiring that the extension be “appended” to any control field.” PX E (*Sercomm/ASUS* CC Order) at 68-75 (term #14). The Eastern District did likewise. PX F (*TP-Link* CC Order) at 59-61. Notwithstanding, these Defendants argue for a narrow construction where the extension is “appended” to the control field and is “dedicated” to scheduling information. Dkt. 41 (Op. Br.) at 30-32.

## V. TERMS FOR CONSTRUCTION

### A. U.S. Patent No. 9,531,520

#### 1. “[A/the] network device” (claims 1, 6)

| Atlas’s Construction       | Defendants’ Construction |
|----------------------------|--------------------------|
| Plain and ordinary meaning | “[an/the] access point”  |

Defendants ask the Court to construe a non-technical term that needs no construction. PX E (*Sercomm/ASUS* CC Order) at 22 (“[T]he Court agrees with Plaintiff that [network device] is not a technical term.”). They fall far short of overcoming the “heavy presumption” that claim terms should be given their plain and ordinary meaning. *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014), *vacated on other grounds*, 575 U.S. 959, 959 (2015).

Defendants first contend, relying on selective quotations of the specification, that “only an access point (*not* a non-AP station) is capable of implementing [the] downlink transmission method step” of Claim 1 and thus “the phrase ‘network device’ must mean ‘access point.’” Dkt. 41 (Op. Br.) at 8–9 (emphasis in original). They relatedly argue that the phrase “plurality of stations” in Claim 1 “effectively disclaims ‘network device’ from encompassing any ‘station’” and it must mean “access point.” *Id.* at 9. This Court, however, has already rejected these arguments and Defendants’ proposed construction, holding “that network devices are not limited to access points” and, “because a STA and access point may have overlapping functionality, *e.g.*, a STA may act as an access point, it is improper to arbitrarily limit network device to an access point.” PX E (*Sercomm/ASUS* CC Order) at 20–22. So, too, has the EDTX. PX F (*TP-Link* CC Order) at 18–19 (“[T]he specification discloses that a device in a communication network can be an access point (‘AP’) or can be a ‘non-AP’ device.”).

Defendants do not mention these decisions much less offer any reason they should not be followed here. *See Crossroads Sys. v. DOT Hill Sys. Corp.*, No. A-13-CA-800-SS, 2015 U.S. Dist. LEXIS 77531, at \*9 (W.D. Tex. June 15, 2015) (“[T]he Court’s previous constructions are highly persuasive in the present case, especially where there is no new argument or evidence to justify a change in position.”); *see also TQP Dev., LLC v. Intuit Inc.*, 2:12-cv-180-WCB, 2014 U.S. Dist. LEXIS 84057, at \*22 (E.D. Tex. June 20, 2014). Both courts were undoubtedly correct. The specification illustrates and repeatedly states that a “wireless communication device,” which a POSITA understands to be a type of “network device,” includes **non**-access point stations. *See, e.g.*, DX 1 (‘520) at Fig. 2 (illustrating “wireless communication devices 212-215” as a phone, laptop, computer, and PDA), 6:24-31 (“wireless communication devices (*e.g.*, devices 212-215) may be non-AP STAs”), 6:38-46 (“A non-AP STA ... may be, for example, a device with wireless

communication capability”). And the specification recognizes there is often functionality overlap between access points and non-access point stations. *Id.* at 6:45-46 (“In one or more aspects, a non-AP STA may act as an AP”), 6:54-56 (“two or more non-AP STAs 212-215, ... can communicate directly with each other (without using the AP 211)”), 6:60-61 (“In one or more aspects, a STA may act as an AP.”). Defendants’ construction therefore impermissibly limits the claims to a preferred embodiment. *Phillips*, 415 F.3d at 1320.

Moreover, the term “access point” never appears in Claims 1 or 6—even though it appears in other independent claims (*e.g.*, claim 18). *Compare* DX 1 (’520) at 30:46-31:12 (claim 1), 31:34-41 (claim 6), *with id.* at 32:53-33:7 (claim 18); *see also* PX E (*Sercomm/ASUS* CC Order) at 22. Nor is there any disclaimer that limits the claims to an access point. Thus, it would be erroneous to restrict the claimed “network device” to an access point to the exclusion of the “non-AP STAs” referenced in the specification. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 908 (Fed. Cir. 2004).

Defendants, relying on prosecution estoppel, also assert that the patentee in the below excerpt equated “network device” and “AP”:

| <u>REMARKS/ARGUMENTS</u>                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The claims have been amended as indicated above. No new matter has been added.                                                                                                                                                                                                                                                                                      |
| Claims 1-20 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over US Pub. No. 2013/0301569 to Wang et al. (Wang). Applicants respectfully traverse the rejections.                                                                                                                                                                                  |
| As discussed with the Examiner at the July 20, 2016 interview, the claims are directed to Up-Link (UL) Multi-User (MU) transmissions, and in particular to UL MU acknowledgement transmissions transmitted in response to a Down-Link (DL) frame. The UL MU transmissions may be simultaneous transmitted from <u>respective stations to an Access Point (AP)</u> . |

Dkt. 41 (Op. Br.) at 9-10 (citing DX 1A (’520 FH) at ATLAS-00004057 (emphasis in Defendants’ brief)). Nothing in the above statement, however, is “so clear as to show reasonable clarity and deliberateness, and so unmistakable as to be unambiguous evidence of disclaimer.” *Genuine*

*Enabling Tech. LLC v. Nintendo Co.*, 29 F.4th 1365, 1374 (Fed. Cir. 2022) (internal quotations omitted). The statement does not even use the term “network device”—much less equate the term with “access point.”

Moreover, the clear thrust of the passage is that the patent “claims are directed to Up-Link (UL) Multi-User (MU) transmissions,” which “*may* be simultaneous transmitted [sic] from respective stations to an Access Point (AP).” DX 1A (‘520 FH) at ATLAS-00004057 (emphasis added). This was done to traverse the Wang reference, which “does not disclose UL MU transmissions.” *Id.* Defendants—in arguing that the “patentee equated ‘network device’ and ‘AP’ when representing that all pending claims involved ‘transmissions . . . from respective stations to an Access Point (AP),’” Dkt. No. 41 (Op. Br.) at 10—intentionally excise significant portions of the prosecution history and the permissive “may” to try to create a clear and unmistakable statement where none exists.

Finally, nothing in this statement contradicts the language from the specification quoted above stating that a “wireless communication device” includes *non*-access point stations—like the “respective stations” in the prosecution history—and recognizing there is often functionality overlap between access points and non-access point stations. There is simply nothing in the quoted prosecution history that comes close to a “clear and unmistakable” statement equating “network device” with “access point.” *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26 (Fed. Cir. 2003).

## 2. “Acknowledgement information” (claims 1, 2, 4, 8, 9, 11, 12, 18, & 19)

| Atlas’s Construction       | Defendants’ Construction                                                                                                                         |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain and ordinary meaning | “solicitation for information to be transmitted following receipt of the downlink multi-user frame to acknowledge the downlink multi-user frame” |

Defendants admit their construction is not based on the plain and ordinary meaning of this term, but is instead based on alleged lexicography. Dkt. 41 (Op. Br.) at 10. Defendants then provide a cropped quote of the supposedly definitional statement. The uncropped version of the statement is as follows: “*In one embodiment*, one or more MPDUs *may* include acknowledgement information that is used for indicating to respective STAs a scheme/technique used to transmit acknowledgement messages to the AP.” DX 1 (’520) at 14:15-18 (emphasis added). This statement does not come close to meeting the “exacting” standard required for lexicography. *Baxalta Inc. v. Genentech, Inc.*, 972 F.3d 1341, 1349 (Fed. Cir. 2020) (“the standard for lexicography is exacting, requiring the patentee to ‘clearly express an intent’ to redefine a term. ... Here, the written description’s use of ‘may also include,’ ‘e.g.,’ ‘such as,’ and ‘etc.’ makes clear the patentee did not intend this excerpt of the written description to define [the term].”). It is also noteworthy that this allegedly “definitional” statement does not contain most of the words in Defendants’ proposed construction, such as “solicitation for information,” “following receipt,” and “multi-user frame.”

Defendants also cite a second specification passage as allegedly “consistent with” the preceding passage, but this passage is also describing an optional embodiment and is not defining any claim term: “FIG. 1A depicts a multi-user (MU) transmission that solicits an immediate acknowledgement ... *according to one embodiment*. FIG. 1B depicts a MU transmission that solicits delayed acknowledgements from all target stations *according to one embodiment*.” DX 1 (’520) at 3:55-60 (emphasis added). Because there is no lexicography, this term should be given its plain and ordinary meaning.

## **B. U.S. Patent No. 9,763,259**

- 1. “Transmitting To The Transmitting Device A Feedback Frame Including Subchannel Information Measured On A First Subchannel After Receiving The NDP Frame” (Claim 1) / “Receiving From Each Receiving Device A Feedback Frame Including Subchannel Information Measured On A Subchannel That Is Allocated To Each Receiving Device Among A Plurality Of Subchannels Into**

**Which A Band Is Divided, After Transmitting The NDP Frame” (Claim 18)**

| <b>Atlas’s Construction</b> | <b>Defendants’ Construction</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain and ordinary meaning  | <p>“in response to receiving the NDP frame, transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel one SIFS after receiving the NDP frame” (claim 1)</p> <p>“in response to and one SIFS after the transmitting of the NDP frame, receiving from each receiving device a feedback frame including subchannel information measured on a subchannel that is allocated to each receiving device among a plurality of subchannels into which a band is divided” (claim 18)</p> <p>If not construed as above, the terms are indefinite.</p> |

These phrases from ’259 Claim 1 and Claim 18 are understood by a POSITA and need no construction. Shoemaker Dec., ¶¶30-37. Defendants’ arguments and unduly narrow construction suffer from many defects.

First, Defendants seek to inject indefiniteness and confusion where there is none. There is no uncertainty in how the different limitations of Claims 1 and 18 “relate[] to” one another. Dkt. 41 (Op. Br.) at 12. Claim 1 requires “transmitting ... a feedback frame ... after receiving the NDP frame” described in the preceding limitation. DX 2 (’259) at 22:40-42 (claim 1). And Claim 18 requires “receiving ... a feedback frame ... after transmitting the NDP frame” described in the preceding limitation. DX 2 (’259) at 24:39-43 (claim 18). Nor is there any ambiguity that the feedback frame being “transmit[ed]” (Claim 1) or “receiv[ed]” (Claim 18) “includ[es] subchannel information.” DX 2 (’259) at 22:41 (claim 1); *id.* at 24:40 (claim 18).

Second, Defendants’ argument about any ambiguity created by the term “after” (Dkt. 41 (Op. Br.) at 12) is undermined by the fact that Defendants take no issue with the term “after” when used in a substantially similar way in other parts of the claim. DX 2 (’259) at, *e.g.*, 22:38-39 (“receiving a null data packet (NDP) frame from the transmitting device *after* receiving the NPDA

frame” (emphasis added)). Further, Defendants own proposed construction uses the term “after” without any further interpretation, underscoring that it needs no construction.

Third, Defendants’ proposed construction seeks to improperly limit the claims to one preferred embodiment while excluding others. Nothing in the claim language or the specification requires the transmission of the feedback frame “in response to and one SIFS” after the NDP frame. Defendants myopically focus on the embodiment of Fig. 7. Dkt. 41 (Op. Br.) at 13 (citing ’259 9:18-22 (re Fig. 7)). Fig. 7 is irrelevant, however, because Claims 1 and 18 of the ’259 require multiple “feedback frames” to be transmitted/received in *parallel*. DX 2 (’259) at 22:47-51 (Claim 1), 24:44-47 (Claim 18). Fig. 7, in contrast, shows that the compressed beamforming feedback frames (labeled “CB” in the figure) are transmitted/received *sequentially*. DX 2 (’259) at Fig. 7, 9:18-44. Thus, the corresponding description stating a device may transmit a feedback frame “as a response of the NDP frame after a SIFS interval”—which is Defendants’ only intrinsic support for its narrow construction—is irrelevant. *Id.* at 9:18-22; *see also Tas v. Beachy*, 626 F. App’x 999, 1005 (Fed. Cir. 2015) (assertions related to “embodiments not covered by the claims and Counts and are therefore irrelevant”).

Moreover, the Fig. 20 embodiment is covered by Claims 1 and 18. Like those claims, Fig. 20 shows a device transmitting a NDPA frame followed by a NDP frame to a plurality of other devices. DX 2 (’259) at Fig. 20. And like the claims, Fig. 20 also shows a plurality of CB feedback frames being transmitted/received in parallel “after [] the NDP frame.” *Id.* But the Fig. 20 embodiment also shows intervening steps that are neither required nor precluded by open-ended “comprising” claims 1 and 18—namely, transmitting/receiving subchannel info and channel feedback triggers. *Id.*; *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1371 (Fed. Cir. 2005) (“The word ‘comprising’ transitioning from the preamble to the body signals that the entire

claim is presumptively open-ended.”). And it shows transmission of the CB feedback frames after these intervening steps and several SIFS intervals, not only “one SIFS after.” Defendants’ narrow construction thus impermissibly excludes the Fig. 20 embodiment by requiring the transmission of the feedback frame “in response to and one SIFS” after the NDP frame and must be rejected. *See Primos Inc. v. Hunter’s Specialties Inc.*, 451 F.3d 841, 848 (Fed. Cir. 2006) (“[W]e . . . should not normally interpret a claim term to exclude a preferred embodiment.”).

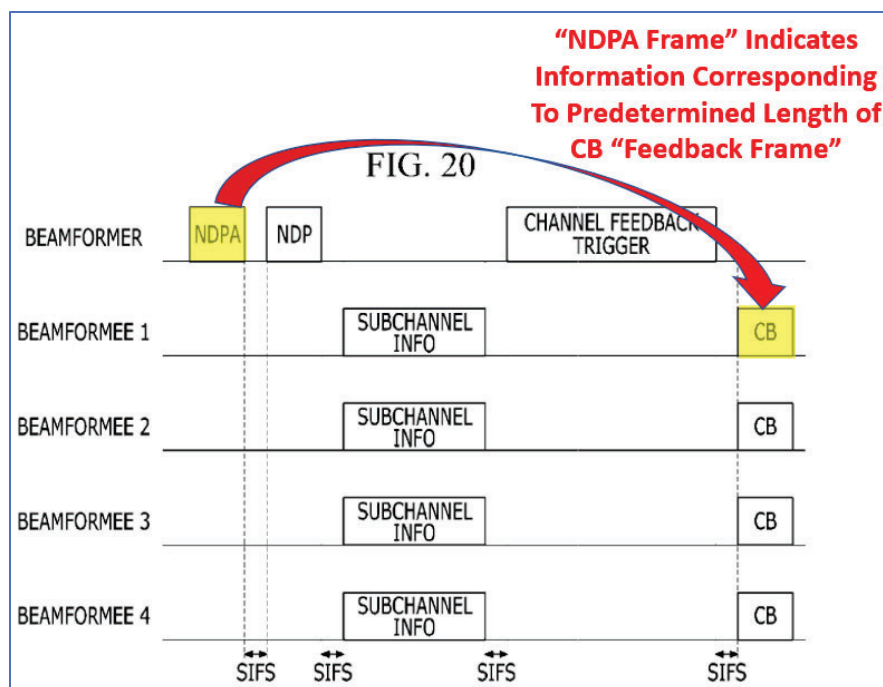
Fourth and finally, Defendants’ construction in several respects simply reorders the claim language (replacing “after transmitting the NDP frame” with “after the transmitting of the NDP frame”). Doing so introduces potential confusion and should be rejected. *See Micron Tech., Inc. v. Tessera, Inc.*, 440 F. Supp. 2d 591, 598 (E.D. Tex. 2006) (rejecting construction because “it simply reorganizes the claim language without offering more guidance than the claim language itself, which makes Tessera’s construction unhelpful, and therefore, improper”).

**2. “Wherein the NDPA frame indicates information corresponding to the predetermined length” (claim 6)**

| <b>Atlas’s Construction</b> | <b>Defendants’ Construction</b> |
|-----------------------------|---------------------------------|
| Plain and ordinary meaning  | Indefinite                      |

This phrase from ‘259 Claim 6 is understood by one of skill and needs no construction. It uses commonly understood words like “indicates” and “corresponding” that are not indefinite.

The ‘259 claims show this phrase is not indefinite. Dependent claim 6 implicates two frames: (1) a Null Data Packet Announcement (“NDPA”) frame and (2) a responsive feedback frame (a/k/a, the compressed beamforming or “CB” frame). DX 2 (‘259) at 22:36-37, 40-45. And “the NDPA frame indicates information corresponding to the predetermined length” of the data to be transmitted by the “feedback frame.” *Id.* at 23:5-7. Annotated Figure 20 illustrates this:



The ‘259 specification explains there are numerous ways to “indicate” the predetermined length of the CB feedback frame. DX 2 (‘259) at 15:38-65. “For example, a data field of the NDPA frame ... may include information on the maximum CB length.” *Id.* at 15:44-47. Thus, the specification provides that the NDPA frame need not explicitly state the precise length of the subsequent CB feedback frame, but rather may “include information on the maximum CB length.” *Id.* This is entirely consistent with the disputed claim language: “wherein the NDPA frame indicates information corresponding to the predetermined length.” From this disclosure, persons of skill understand the claim phrase with reasonable certainty. *Shoemake Dec.*, ¶¶42-46.

The extrinsic evidence also confirms Atlas’s plain and ordinary meaning construction. Dictionaries define “indicate” as “imply,” *e.g.*, PX G (Random House) at ATLAS-00033238, and “to be a sign, symptom, or index of,” *e.g.*, PX H (Merriam-Webster) at ATLAS-00033243; and “corresponding” as “similar in character, form, or function,” *e.g.*, PX I (New Oxford American) at ATLAS-00033164. Indeed, the Federal Circuit has consistently applied a plain and ordinary meaning to these words (thereby implicitly rejecting indefiniteness). *See Respiroics, Inc. v.*

*Invacare Corp.*, 303 F. App'x 865, 880–81 (Fed. Cir. 2008) (construing “correspond to” under “plain and ordinary meaning”); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 806 (Fed. Cir. 1999) (affirming an “ordinary meaning” construction of the term “correspond to”).

In the ASUSTeK Claim Construction Order, the defendants raised nearly identical arguments that these terms were indefinite, and the Court rejected those arguments. PX E (*Sercomm/ASUS* CC Order) at 23-26 (term #4). It should do the same here.

**C. U.S. Patent No. 9,825,738**

**1. “Transmitting The Downlink Data And The Uplink Setup Information In A Single Physical Downlink Frame To A Plurality Of Stations” (Claim 1) / “The Physical Downlink Frame Comprising: Uplink Setup Information Including A First Information To Be Used For Uplink Multi-User Transmission By The Station, And Downlink Data” (Claim 9)**

| Atlas’s Construction       | Defendants’ Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain and ordinary meaning | <p>“transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations, wherein the uplink setup information is that which would otherwise be in an uplink setup or uplink initiation (ULI) frame, and the downlink data is data other than the uplink setup information” (claim 1)</p> <p>“the physical downlink frame comprising: uplink setup information including a first information to be used for uplink multi-user transmission by the station, and downlink data, wherein the uplink setup information is that which would otherwise be in an uplink setup or uplink initiation (ULI) frame, and the downlink data is data other than the uplink setup” (claim 9)</p> |

The 738 claims require transmitting/receiving downlink data and uplink setup information in a physical downlink frame. DX 3 (’738) at 24:60-62, 25:37-43. This language needs no construction.

The ’738 specification describes transmitting data in a physical layer (or PHY) frame, such as a PHY protocol data unit (or PPDU). DX 3 (’738) at 10:49-51; *see also id.* at 23:48-51 (DL PPDU is an example of a downlink data frame). According to the ’738 patent preferred

embodiments, downlink PPDU's transmitted by an access point may include uplink setup information. *See id.* at, *e.g.*, 23:45-24:17; Figures 25, 26, 27.

The concept of a physical downlink data frame (*e.g.*, a PPDU), was well known by a POSITA at the time of the '738 invention; the earlier 802.11ac standard defined "physical layer (PHY) protocol data unit (PPDU)" as "[t]he unit of data exchanged between two peer PHY entities to provide the PHY data service." PX J (802.11ac-2013) at ATLAS-00031951; *see also id.* at ATLAS-00031946-49 (defining various PPDU's); Shoemake Dec., ¶50. There are multiple types of data that may be included in the payload of such a PPDU transmitted by an AP as part of a multi-user downlink transmission. Shoemake Dec., ¶51. For example, the '738 patent explains that a transmission may comprise a data frame, a control frame or a management frame, all of which include payload data. DX 3 ('738) at 9:30-32; *see also* Shoemake Dec., ¶51. In fact, Figure 28 of the '738 patent shows compressed beamforming information included as part of a PPDU in a multiple user uplink transmission. Compressed Beamforming information is regarded as management data. Shoemake Dec. at ¶51; PX J (802.11ac) at ATLAS-00031995-996.

Defendants' construction adds requirements not specified in the claims, based on a specification passage describing a particular embodiment shown in Figure 25. Dkt. 41 (Op. Br.) at 14-15. It is improper to limit the claims to a preferred embodiment, and Defendants do not identify any disclaimer or definitional statement that would justify doing so here. Defendants state that "the patentee must have imparted a particular meaning to each of the disputed claim phrases"—*i.e.*, "uplink setup information" and "downlink data"—but they never identify where that alleged lexicography occurred. *Id.* The only '738 passage they cite is 23:61-67, but there is no clear and unmistakable definition provided in that passage. *Id.* Instead, the '738 patent explains that Figure 25, like other embodiments shown in Figures 22-24 and 26-28, "exemplify UL MU transmission

procedure in a wireless communication network according to various embodiments of the present invention.” DX 3 (‘738) at 23:17-20; *see also id.* at 6:50-53.

Even more egregiously, Defendants’ construction is hopelessly confusing and seeks to define “uplink setup information” as information “that would otherwise be in an uplink setup or uplink initiation (ULI) frame,” and “downlink data,” as “data other than the uplink setup information.” Defendants construction implicates an uplink setup or uplink initiation (ULI) frame although no such frame is recited in the claims, while also requiring that uplink setup information must be located separately from these uplink frames. Nothing in the ‘738 claims require that uplink setup information must be located separately from an uplink setup frame or from a ULI frame. To the contrary, the ‘738 patent specification indicates that a ULI frame, if one is provided, may include uplink setup information. *See* DX 3 (‘738) at 17:15-17. The requirement that the uplink setup information must always be information that would otherwise be provided in a ULI frame or uplink setup frame has no support in the ‘738 Patent.

**2. “The Second Information Is A Function Of A Total Number Of Space Time Streams To Be Used To Transmit The Multiple Uplink Frames” (Claim 1) / “The Second Information Is A Function Of A Total Number Of Space Time Streams To Be Used To Perform The Simultaneous Transmission Of The Uplink Frame And The One Or More Uplink Frames From The One Or More Other Stations” (Claim 9)**

| Atlas’s Construction                                                                                                                                                                                                                                                                                                                                                                                                                                          | Defendants’ Construction |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <p>Plain and ordinary meaning</p> <p>Alternatively, “the second information in the common information portion is a value that is related to the total number of space time streams to be used to transmit the multiple uplink frames” (claim 1) / “the second information in the common information portion is a value that depends on the total number of space time streams to be used to simultaneously transmit the multiple uplink frames” (claim 9)</p> | <p>Indefinite</p>        |

The ‘738 claims provide reasonable certainty regarding their scope, as this Court found in ASUS/Sercomm, based on essentially the same evidence presented here. PX E (*Sercomm/ASUS*

CC Order) at 26-31; *see also* PX F (*TP-Link* CC Order) at 25-29. Defendants complain that a specific functional relationship is not identified in the claims, but that is an issue of breadth, not definiteness. *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1367 (Fed. Cir. 2017).

A POSITA understands that “a function” indicates that one quantity is determined based on one or more other quantities. Shoemake Dec., ¶58; PX K (IEEE Dictionary) at ATLAS-00033199. For example, the notation  $u = f(x)$  is commonly used to indicate that variable  $u$  is “a function of” a variable  $x$ . The variable  $x$  is an independent variable, and  $u$  is the dependent variable determined “as a function of”  $x$ . *Id.* For each value of the independent variable(s), there will exist a corresponding value of the dependent variable.<sup>1</sup> *See id.*; PX L (Modern Dictionary of Electronics) at ATLAS-00033189. This meaning of “function” is well understood by a POSITA. Indeed, Defendants’ expert defines “function” in a similar fashion, requiring a “mathematical relationship or dependence between quantities.” Roy Dec. at ¶36.

The claim language requires that the claimed second information is a function of the total number of space time streams used to transmit the multiple uplink frames. Thus, the independent variable ( $x$ ) comprises the total number of space time streams, while the dependent variable ( $u$ ) represents the second information included in the common information portion of the uplink setup information. A skilled artisan can identify with reasonable certainty whether the common information portion includes information that varies depending on the total number of space time streams used in the transmission of a multi-user uplink frame. Shoemake Dec., ¶57-62.

Further, the intrinsic evidence identifies an exemplary functional relationship. Specifically, the ’738 specification indicates that the number of high efficiency long training fields (HEW-LTF)

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<sup>1</sup> It also is possible for a value  $u$  to be dependent on multiple variables, for example  $u = f(x,y)$ .

*may be determined in accordance with* (i.e., is a function of) the number of space time streams:

For the MIMO channel estimation, the number of HEW long training fields (HEWLTFs) *may be determined in accordance with* the number of antennas to be used for transmission, i.e., the number of space-time streams. For example, when the numbers of space-time streams are 1, 2, 3, 4, 5, 6, 7, and 8, the numbers of long training fields *may be determined* as 1, 2, 4, 4, 6, 6, 8, and 8, respectively.

DX 3 ('738) at 22:22-29 (emphasis added); *see id.* at 22:39-53 (stations determine the number of HEW-LTFs based on total number of space time streams). This correspondence between the number of long training fields and the number of space time streams may be written as:

| # Of Space-Time Streams | # High Efficiency Long Training Fields |
|-------------------------|----------------------------------------|
| 1                       | 1                                      |
| 2                       | 2                                      |
| 3                       | 4                                      |
| 4                       | 4                                      |
| 5                       | 6                                      |
| 6                       | 6                                      |
| 7                       | 8                                      |
| 8                       | 8                                      |

Consistent with the ordinary meaning of “function,” for each value of the independent variable x (the # of space time streams), there is a corresponding value representing the dependent variable (the # of HEW-LTF) used for the uplink MU-MIMO transmission. Shoemake Dec., ¶¶60-62.

The Provisional Application No. 61/975,622, incorporated into the '738 Patent, describes a similar concept, showing that the UL setup packet includes the “Total number of HEW-LTFs to be used for UL MU-MIMO” transmission. PX M ('738 Provisional) at ATLAS-00013794. The Provisional also explains the functional relationship between the number of LTFs and the total number of space time streams, noting that the total number of data streams (which may be included in the common information portion) “allow[s] the STA to know the number of LTFs to be included in a UL data frame.” *Id.*; *see also id.* at ATLAS-00013796 (common information identifies “total number of data streams of all STAs joining in the UL”). Thus like the '738 specification, the

incorporated Provisional explains that a functional relationship exists between the total number of space time streams and the total number of HEW-LTF fields.

For the foregoing reasons, this limitation is not indefinite, as this Court ruled previously. PX E (*Sercomm/ASUS* CC Order) at 31. Lastly, while Atlas maintains no construction is necessary given the clarity of the claim language, to the extent the Court concludes a construction is needed, the alternative construction clarifies the claimed “function” has a value related to (or that depends on) the total number of space time streams, which the ’738 intrinsic record supports.

#### D. U.S. Patent No. 9,848,442

##### 1. “A Mode That Is High Efficiency” / “A Mode Of A Standard Previous To A Standard Defining The High Efficiency Mode” (Claims 1, 8)

| Atlas’s Construction                                                                                                                                                                                                                  | Defendants’ Construction |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| “a mode specified as High Efficiency (HE) by an 802.11 Standard or proposed 802.11 Standard” /<br>“a legacy mode specified in a IEEE 802.11 Standard released prior to 802.11ax standard or proposed standard (e.g., non-HT, HT, VHT) | Indefinite               |

The ’442 Patent discloses a system for receiving and processing two different types of 802.11 frames—High Efficiency (HE) frames, and legacy frames. A High Efficiency frame is a frame specified as High Efficiency by an 802.11 standard or proposed standard. A legacy frame is a frame defined by versions of the 802.11 standard prior to the 802.11ax standard. Both definitions come directly from the specification. Defendants do not cite either express definition, but instead argue the terms are indefinite. Defendants also do not cite any expert testimony for this term.

The specification provides definitions of both terms. First, “High Efficiency” refers to “High Efficiency” as used in the context of 802.11ax. The specification states “a PHY header (e.g., a preamble) of a frame *defined in the IEEE 802.11ax (hereinafter, referred to as ‘11ax frame’ or ‘HE frame.’)*” DX 4 (’442) at 12:11-16 (emphasis added). Similarly, the specification describes

one type of frame as “a HE frame (11ax frame).” *Id.* at 12:45-48; 8:6-13 (“a PPDU specified in the IEEE 802.11ax (i.e., 11ax PPDU)”).

Second, the specification explains that a “legacy” mode refers to a mode defined in versions released prior to 802.11ax. It defines a legacy PPDU as “a PPDU specified by versions earlier than the IEEE 802.11ax.” DX 4 (’442) at 8:21-28. The specification also provides an enumerated list of legacy frames. *See id.* at 12:19-22 (“a legacy frame (e.g., a non-HT frame, a HT, frame, a VHT frame, etc.”). So does the provisional application. PX N (’442 Provisional) at ATLAS-00014123 (“Legacy frame: It indicates all types of frames before 11ax. In other words, non-HT, HT, VHT frame includes in [sic] legacy frame.”).<sup>2</sup> The specification specifically distinguishes the legacy frames from HE frames. DX 4 (’442) at 12:45-48 (“[T]he station may identify the received frame as one of a non-HT frame, a HT frame, a VHT frame, **and a HE frame (11ax frame)**.”) (emphasis added). Atlas identified these specific frame types in its proposed construction to aid the jury and as further evidence that the terms are not indefinite. Defendants rejected identifying these frame types, but do not contend that the identification is inaccurate. *See* Dkt. 41 (Op. Br.) at 19 n.4.

A skilled artisan understands that High Efficiency/HE refers to the then-existing proposed standards that would ultimately become the IEEE 802.11ax standard. Shoemaker Dec., ¶71. The specification explains that the 802.11ax standard was being developed at the time of the invention (DX 4 (’442) at 1:52-55), and the ’442 Patent is loaded with references to “HE” or “11ax.” Similarly, the provisional classifies frames as either 11ax or legacy. *See, e.g.*, PX N (’442 Provisional) at Figure on ATLAS-00014125. Within the IEEE, the working group tasked with developing the 802.11ax standard was known as the “High Efficiency WLAN” group. PX O (Press Release); PX P (HEW SG January 2014 Meeting Agenda) at ATLAS-00028846. Newracom

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<sup>2</sup> Defendants fail to cite or address any of the 21 times the specification uses the word “legacy.”

employees participated in the HEW working group and its engineers would have understood both the contents of the proposed 802.11 standard at that time and the meaning of the abbreviation “HE,” as would anyone familiar with the IEEE standard at that time. *See* PX Q (Proposed Specification Framework for TGax) at ATLAS-00028960-1 (document authored by Newracom defining “HE” as “High Efficiency”); PX R (Proposed Framework – Background) (Newracom submission to the HEW working group); Shoemake Dec., ¶¶66-74.

Defendants raise three arguments for why these terms are indefinite, none of which have merit. First, Defendants argue the word “mode” is not disclosed in the ’442 specification, and a skilled artisan does not understand that term. Dkt. 41 (Op. Br.) at 17. This argument divorces a single word from the surrounding claim context. Claim 1 requires “the first PPDU is a frame having a mode that is High Efficiency.” DX 4 (’442) at 15:44-46. The plain reading of this limitation is that a High Efficiency mode refers to a HE PPDU frame. The specification is clear that a HE PPDU frame is a frame defined in 802.11ax. *See id.* at 12:11-16.

Second, Defendants attempt to characterize “High Efficiency” as a term of degree, arguing the specification does not provide guidance as to how efficient a mode must be to be considered “high” efficiency. *See* Dkt 41 (Op. Br.) at 18. “High Efficiency” is a proper noun, not a term of degree, as evidenced by its capitalization. *See Lextron Sys. v. Microsoft Corp.*, 2005 U.S. Dist. LEXIS 49928, at \*18 (N.D. Cal. Jun. 1, 2005) (capitalization suggests a term is a proper noun). It is a binary question—the mode is either High Efficiency or legacy—and there are no terms of degree. *See* DX 4 (’442) at Fig. 10 (columns A and B are HE, columns C and D are legacy).

Third, Defendants argue Atlas’s proposed construction improperly relies on the 802.11ax standard because the standard was “not yet contemplated” at the time of the invention. Dkt. 41 (Op. Br.) at 18-19. As illustrated above, that is not correct. The IEEE was working on the 802.11ax

standard at the time of the invention, and Newracom (the original assignee) was involved in the standards process. Shoemake Dec., ¶¶69-70. Further, none of the cases cited by Defendants (at 18-19) found the disputed terms indefinite. In fact, one of the cases *denied* a motion for summary judgment of indefiniteness because the court held that a term should be defined the same way as it “is known within the normal Bluetooth protocol.” *See Uniloc U.S. v. Apple, Inc.*, 2021 U.S. Dist. LEXIS 25603, at \*40 (N.D. Cal. Jan. 15, 2021).

In the ASUSTeK Claim Construction Order, the defendant raised nearly identical arguments that these terms were indefinite, and the Court rejected those arguments. PX E (*Sercomm/ASUS* CC Order) at 39-45 (term #8). It should do the same here.

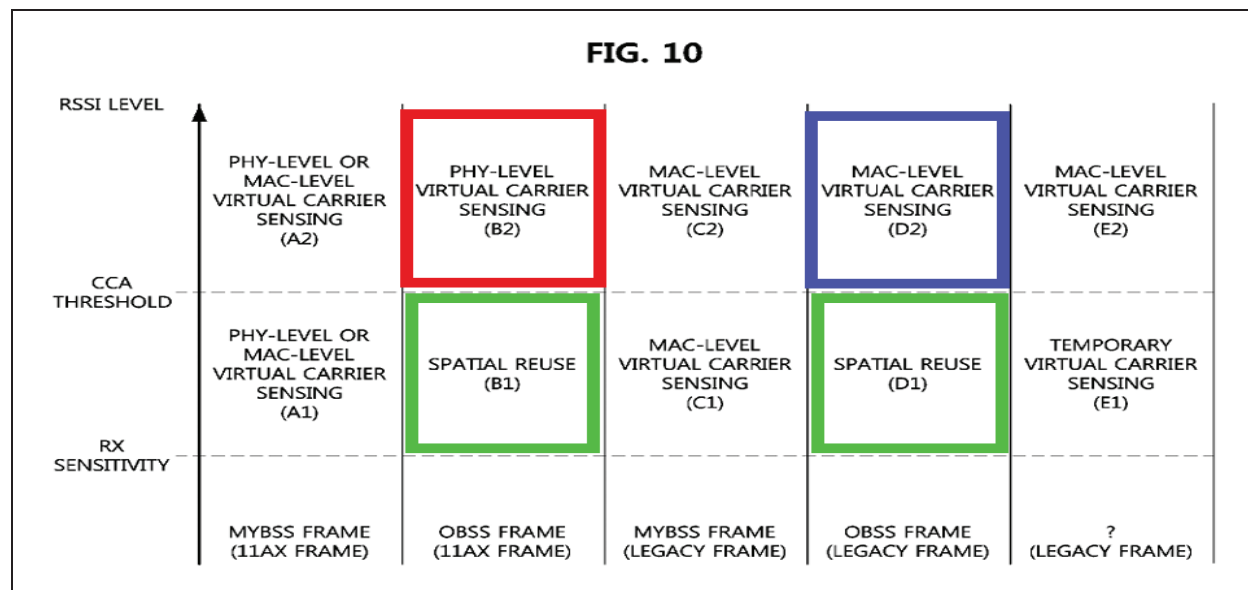
- 2. “When The BSS Of The First PPDU Is The BSS To Which The First Station Does Not Belong, A Received Signal Strength Of The First PPDU Is Higher Than A First Threshold, And The First PPDU Is A Frame Having A Mode That Is High Efficiency And Having A PHY Header That Includes Duration Information For Setting A Virtual Carrier Sensing, Setting A PHY-Level Virtual Carrier Sensing ... ; When . . . The Received Signal Strength Of The First PPDU Is Higher Than The First Threshold, The First PPDU Is A Frame Having A Mode Of A Standard Previous To A Standard Defining The High Efficiency Mode, And The First PPDU Is A Frame Having A PHY Header That Does Not Include Duration Information For Setting The Virtual Carrier Sensing, ...; And When . . . The Received Signal Strength Of The First PPDU Is Lower Than The First Threshold ...” (Claims 1, 8)**

| Atlas’s Construction       | Defendants’ Construction                                                                                                                                                                                                                                                           |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain and ordinary meaning | Indefinite<br><br>If not indefinite, the Court must determine whether only one of the claimed steps with mutually exclusive conditions, or all three of the claimed steps with mutually exclusive conditions, are required to occur for purposes of meeting the claim limitations. |

Defendants attempt to inject ambiguity into straightforward claim language. The ’442 Patent teaches that stations will treat received frames differently depending on certain characteristics of the frame. There are two specific characteristics relevant to independent claims 1 and 8: (1) whether the received signal strength is higher or lower than a first threshold; and (2)

whether the frame is High Efficiency or legacy.

Fig. 10 illustrates the concept underlying the independent claims of the '442 Patent, which governs when a device will seek to access the 802.11 network:



DX 4 ('442) at Fig. 10 (annotations added). If the signal strength of the first received PPDU (RSSI Level in Fig. 10) is higher than a first threshold (the CCA threshold in Fig. 10) and the frame is a High Efficiency 11ax frame, the station will set a PHY-level virtual carrier sensing. *Id.* at 12:11-19, 12:29-36, 12:45-48, 12:53-58, 13:16-21, 14:10-18. This is region B2, shown in red. *Id.* at 14:10-18. If the received signal strength is higher than the first threshold and the frame is a legacy frame, the station will set a MAC-level virtual carrier sensing. *Id.* at 10:7-12, 12:19-22, 12:32-36, 12:53-58, 12:65-13:21, 14:46-54. This is region D2, shown in blue. *Id.* at 14:46-54. If the received signal strength is lower than the first threshold, the station will attempt to obtain a transmission opportunity (spatial reuse in Fig. 10). *Id.* at 14:3-9 (B1 region), 14:39-45 (D1 region). This is regions B1 and D1, shown in green. *Id.* A skilled artisan, reading the '442 claims in light of the specification, would have no trouble understanding the scope of the invention. *See Nautilus*, 572 U.S. at 901; *Shoemaker Dec.*, ¶¶75-80.

Defendants argue it is unclear whether practicing one, two, or all three method steps is necessary to infringe claim 1. Dkt. 41 (Op. Br.) at 21. Federal Circuit caselaw is clear—an accused device must be capable of practicing all three steps to infringe, and the prior art must disclose all three steps to invalidate. The Federal Circuit addressed the infringement of method claims with conditional limitations in *Lincoln Nat’l Life Ins. v. Transamerica Life Ins.*, 609 F.3d 1364 (Fed. Cir. 2010). The disputed method claim contained a conditional limitation, and there was no evidence the accused product was capable of practicing both scenarios recited in the claim. *Id.* at 1369. The court reversed the infringement verdict, holding that the accused product must be capable of practicing both claimed scenarios; it was insufficient to prove infringement by proving just one scenario. *Id.* at 1370. For ‘442 claim 1, this means proving infringement requires showing one of the steps is actually performed, and all three steps are capable of being practiced.

Judge Stark construed a very similar limitation in *Interdigital Tech. Corp. v. Lenovo Holding Co.*, 2021 U.S. Dist. LEXIS 88682 (D. Del. May 10, 2021). In that case, a method claim had a conditional limitation: if A, then X; if B, then Y. *Id.* at \*13. Like claim 1 of the ‘442 Patent, conditions A and B were mutually exclusive such that A and B could not occur at the same time. *Id.* The defendant argued every claimed step must be carried out to infringe. *Id.* The court (citing *Lincoln* and *Hytera*) rejected that argument, holding that “each condition need not actually be **practiced** at the same time but only that patented embodiments be **capable** of doing so.” *Id.* at \*14 (emphasis in original). It would be nonsensical to require the actual performance of mutually exclusive conditions to infringe. *Id.* at \*15. Claim 1 of the ‘442 Patent has the same format. The claim requires that an accused system “must be **capable** of addressing each alternative, regardless of which alternative occurs at any point.” *Id.* at \*15-16 (emphasis in original).

In the context of validity, the prior art must disclose all three steps to invalidate. *See Hytera*

*Comms. Co. v. Motorola Sols., Inc.*, 841 F. App'x 210, at \*215-16 (Fed. Cir. 2021) (citing *Lincoln*). In *Hytera*, the disputed claim contained a conditional limitation: if A, then B; otherwise C. *Id.* at \*215. This is similar to the format of the '442 Patent: if A, then X; if B, then Y; if C, then Z. The *Hytera* patent challenger argued the prior art only needed to teach one alternative to invalidate the method claim. *Id.* The Federal Circuit rejected that argument, holding that “the prior art must teach each step of the claim, including the response to each condition in the [conditional limitation].” *Id.* at \*218. Much like the claims of the '442 Patent, “the claim specifies what action must occur in each scenario of the conditional limitation,” which means every limitation must be practiced. *Id.* at \*216. Therefore, to invalidate '442 Claim 1, the prior art must disclose all three limitations. *See id.* (rejecting the argument that “when a conditional method claim has multiple possible paths, the prior art need only show one possible path to render the claim unpatentable”).

Defendants focus their argument on method claim 1, devoting a single sentence to system claim 8. *See* Dkt. 41 (Op. Br.) at 21. But the law differs regarding method and system claims. For system claims with conditional limitations, the accused system must be capable of implementing each alternative. *See Interdigital Tech. Corp. v. Lenovo Holding Co.*, 2021 U.S. Dist. LEXIS 88682, at \*15-16 (D. Del. May 10, 2021); *Koninklijke KPN N.V. v. Telefonaktiebolaget LM Ericsson*, 2022 U.S. Dist. LEXIS 46812, at \*114 (E.D. Tex. Mar. 16, 2022) (citing *Interdigital*). Defendants do not cite any case finding an apparatus claim with conditional limitations indefinite. Even if the Court finds method claim 1 indefinite, Defendants have not presented any argument or evidence that system claim 8 is indefinite.

In the related Claim Construction Order, the defendant raised nearly identical arguments that these terms were indefinite, and the Court rejected those arguments. PX E (*Sercomm/ASUS* CC Order) at 45-49 (term #9). It should do the same here. This clear term is not indefinite and does

not need to be defined.

**E. U.S. Patent No. 9,912,513**

1. “Wherein at least a portion of the payload of the uplink frame is associated with the first guard interval length” (claim 1) / “wherein at least a portion of the payload of the uplink frame is associated with the first CP length” (claim 9) / “wherein at least a portion of the legacy header is associated with a second CP length” (claim 10) / “wherein at least a portion of the respective non-legacy header is associated with the first guard interval” (claim 16)

| Atlas’s Construction       | Defendants’ Construction |
|----------------------------|--------------------------|
| Plain and ordinary meaning | Indefinite               |

These claim phrases use simple words—“at least a portion” and “associated with”—according to their well-understood meaning. Because the claims are not indefinite, the Court can resolve the Parties’ dispute with a “plain and ordinary meaning” construction. Indeed, this Court did just that when construing these same terms. PX E (*Sercomm/ASUS CC Memo*) at 50-55.

- a. *The intrinsic and extrinsic evidence confirms these terms are readily understood as per their plain and ordinary meanings.*

The ’513 Patent has three independent claims that recite similar concepts, albeit from different perspectives; claims 1 and 9 cover a station, while claim 15 covers an access point.

Independent claim 1 is representative:

1. An apparatus for facilitating wireless communication, the apparatus comprising:  
one or more memories; and

one or more processors coupled to the one or more memories, the one or more processors configured to cause:

receiving, in a ***trigger frame*** transmitted by an access point, ***an indication of a first guard interval length***, wherein the trigger frame allocates one or more resources for an uplink (UL) multi-user (MU) transmission and solicits the UL MU transmission, wherein ***a value of the first guard interval length is to be used by each of a plurality of stations***, including the apparatus, associated with the UL MU transmission,

generating an ***uplink frame*** for the UL MU transmission solicited by the trigger frame, wherein ***the uplink frame comprises a payload and a physical layer (PHY) header***, and

**DL Frame**  
**UL Frame**

transmitting the uplink frame using a resource allocated by the trigger frame to the apparatus,

**wherein at least a portion of the payload of the uplink frame is associated with the first guard interval length.**

DX 5 ('513) at 21:21-44 (emphasis added); *cf. id.* at 22:10-27 (claim 9), 22:50-67 (claim 15).

The '513 independent claims generally recite two transmissions: (1) a downlink “trigger frame” sent by an access point to a plurality of stations that, among other things, indicates the guard interval length<sup>3</sup> “to be used” by those stations for a responsive uplink frame; and (2) an “uplink frame” with a header and a payload that is sent by those responding stations, which uses the guard interval length indicated by the downlink trigger frame—“at least [for] a portion of the payload of the uplink frame.” *Id.* Thus, the '513 independent claims require that “at least a portion of the payload of the uplink frame” (*i.e.*, some or all of uplink frame’s payload) will “use[]” and therefore be “associated with the first guard interval length”—like the plain and ordinary meaning.

Dependent claims 5, 10, 16, and 17 recite similar concepts, but address the guard interval length used for a portion of the “header” (rather than the “payload”) of the uplink frame. DX 5 ('513) at 21:57-58 (claim 5), 22:28-31 (claim 10), 23:1-5 (claim 16), 23:6-9 (claim 17). Those dependent claims similarly show that some or all of the specified header uses a particular guard interval length, as per the plain and ordinary meaning. *Id.*

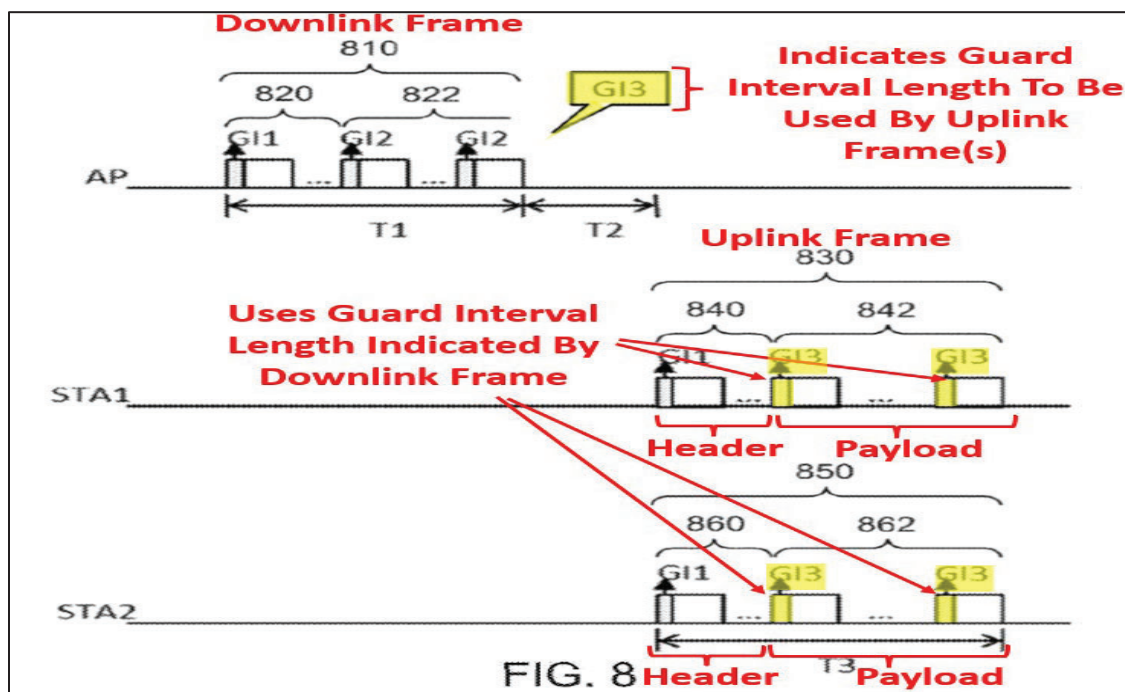
The '513 specification—and Fig. 8 in particular—also confirms the plain and ordinary meaning of the claims. Like the claims, Fig. 8 shows two transmissions: (1) downlink frame 810 sent by the AP access point to stations STA1 and STA2; and (2) uplink frames 830/850 sent in

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<sup>3</sup> The '513 Patent also refers to a “guard interval length” as a “cyclic prefix length.” DX 5 ('513) at 10:55-57 (“In one or more implementations, a guard interval is a cyclic prefix (CP), and a guard interval duration is a CP length.”); *also compare* '513 claim 1 (using “guard interval”) *with* '513 claim 9 (using “cyclic prefix”). Defendants agree there is a “direct relationship between the cyclic prefix length and the guard interval length.” Dkt. 41 (Op. Br.) at 5.

response to the downlink frame, each of which includes a header 840/860 and a payload 842/862.

DX 5 ('513) at Fig. 8 (annotations added), 16:65-67, 17:23-28; *see also* 8:65-9:2.



Importantly, “[t]he downlink frame 810 may also include information on a guard interval duration **GI3 to be utilized** by the participating stations.” *Id.* at 17:17-20 (emphasis added). The stations “decode the downlink frame 810” and “identify the guard interval duration **GI3 to be utilized** in the [payloads] 842 and 862 of the respective uplink frames 830 and 850.” *Id.* at 17:23-31 (emphasis added). Then, those stations “**use** the guard interval duration **GI3** indicated by the downlink frame 810 for UL OFDMA transmission for” a portion of payload 842/862—**namely, that portion marked “GI3” and highlighted yellow in the figure below.** *Id.* at 17:34-37 (emphasis added). So the ‘513 specification also shows that some or all of the uplink frame’s payload 842/862 uses the guard interval length “GI3” indicated by the downlink frame.

With respect to the ‘513 dependent claims, the specification teaches both legacy headers and non-legacy headers (a/k/a “HE headers”). DX 5 ('513) at 9:2-6, 9:20-25. Those legacy and non-legacy headers may use different guard interval lengths. *See id.* at 10:57-61, 12:12-18.

Lastly, the extrinsic evidence confirms that the claims use these words consistent with their plain and ordinary meanings. For example, standard dictionaries define a “portion” as a “part of share of something.” PX T (Merriam Webster’s Collegiate Dictionary) at ATLAS-00033263; *see also* PX S (American Heritage Dictionary) at ATLAS-00033268 (“portion: a section or quantity within a larger thing”). And “associate” means “to bring together or into relationship in any of various intangible ways.” PX U (Merriam Webster’s Collegiate Dictionary) at ATLAS-00033122; *see also* PX V (American Heritage Dictionary) at ATLAS-00033127 (“associate: to correlate or connect logically or causally”). So even lay dictionaries recognize that when “at least a portion” of thing A “is associated with” thing B, that means some or all of thing A has a relationship with or connection to (*e.g.*, it uses) thing B—the plain and ordinary meaning.

b. *These terms are not indefinite.*

Defendants mistakenly argue these terms are indefinite because a person of skill does not reasonably know what is “‘the portion’ of the claimed header and claimed payload” or “the level to which they must be ‘associated with’ the guard interval.” Dkt. 41 (Op. Br.) at 23. As shown above and as demonstrated by Atlas’s expert, Dr. Shoemake, a person of skill understands these terms with reasonable certainty. Shoemake Dec., ¶¶81-90. For example, Dr. Shoemake explains that if **any** part of the UL frame’s payload **uses** the guard interval length indicated by the preceding DL trigger frame, then “at least a portion of the payload of the uplink frame is associated with the first guard interval length,” as per ‘513 claim 1. *Id.* at ¶89.

Defendants also erroneously allege that “portion” and “associated with” are terms of degree. Dkt. 41 (Op. Br.) at 23. Not so. These terms are nothing like the purely subjective terms of degree that the Federal Circuit has invalidated. *E.g.*, *Niazi Licensing Corp. v. St. Jude Med. S.C., Inc.*, 30 F.4th 1339, 1347-50 (Fed. Cir. 2022) (collecting indefinite terms-of-degree like “aesthetically pleasing” and “unobtrusive manner”). Rather, these terms provide definite

boundaries—albeit broad ones. “But a claim is not indefinite just because it is broad.” *Id.* at 1347. And Defendants’ *Advanced Aerospace* case is inapt because the term-at-issue was “outboard portion” (not just “portion”), and the parties’ disputed whether the claimed portion was “outboard” or “inboard.” *Advanced Aero. Techs., Inc. v. United States*, 124 Fed. Cl. 282, 292-94 (2015).

But even if “portion” and “associated with” are terms of degree, the ‘513 Patent provides a standard for measuring their bounds. *See, e.g., Niazi*, 30 F.4<sup>th</sup> at 1349-50 (claims not indefinite because “[t]he intrinsic record provides objective boundaries by which a skilled artisan could determine the scope of the claims.”). For example, the ‘513 claims do not recite just any “portion.” Rather, ‘513 claims 1 and 9 specify “at least a portion *of the payload of the uplink frame.*” DX 5 (‘513) at 21:42-43, 22:26-27 (emphasis added). And dependent claims 10 and 16 recite “at least a portion *of the [legacy/non-legacy] header.*” *Id.* at 22:29-30, 23:3-4 (emphasis added). From this context, a person of skill knows the boundaries of the claimed “portions.” Shoemake Dec., ¶¶83-84. Similarly, the ‘513 claims do not specify just any “association” between the claimed portion transmitted by the stations and the guard interval length. Instead, those claims explain the downlink frame’s “guard interval length is *to be used* by each of a plurality of stations” when transmitting the portion of the uplink frame. *Id.* at 21:32-33 (emphasis added); *see also id.* at 22:18-19, 22:52-53. So a person of skill understands from the claims that an “association” occurs when a portion of the uplink frame uses a guard interval length. Shoemake Dec., ¶¶83-84. Defendants wrongly assert “the claims provide no details as to what ‘portion’ of the uplink frame must be ‘associated with’ the guard interval.” Dkt. 41 (Op. Br.) at 24.

Defendants are equally wrong in alleging “the specification also fails to provide any guidance on the objective boundaries for these limitations.” Dkt. 41 (Op. Br.) at 24. Fig. 8 (reproduced above) and the corresponding text plainly shows at least a portion of the uplink

frame’s payload 842 (highlighted yellow) uses the guard interval length “GI3” that was indicated by the preceding downlink frame—exactly as claimed. DX 5 (’513) at Fig. 8, 17:34-39. Thus, the specification provides (1) the claimed “portion” includes the uplink payload symbols that are preceded by the guard interval GI3 and (2) the claimed “association” comes from the fact that those symbols use the same guard interval GI3 indicated by the prior downlink frame. In view of the above, persons of ordinary skill understand those terms with reasonable certainty. Shoemaker Dec., ¶¶85-86.<sup>4</sup>

For all these reasons, Defendants have not met their burden to prove indefiniteness by clear and convincing evidence. *BASF Corp.*, 875 F.3d at 1365.

#### F. U.S. Patent No. 10,020,919

1. **“Determining Exactly A Number Of The One Or More Station Information Fields In The NDPA; ... In Response To Determining That The Number Of The One Or More Station Information Fields In The NDPA Is One, Transmitting First Channel State Information (CSI) Feedback In Response To Receiving The NDP” (Claim 1) / “When The Number Of The One Or More Station Information Fields In The NDPA Is Greater Than One, ... Transmitting The First CSI Feedback In Response To Receiving The First Trigger Frame” (Claim 2) / “When The Number Of The One Or More Station Information Fields In The NDPA Is Greater Than One, ... Transmitting Second CSI Feedback In Response To Receiving The Second Trigger Frame” (Claim 8) / “When A Number Of The One Or More Station Information Fields In The NDPA Is One, Receiving First Channel State Information (CSI) Feedback Transmitted In Response To The NDP Having Only One Station Information Field” (Claim 11) / “When The Number Of The One Or More Station Information Fields In The NDPA Is Greater Than One, ... Receiving The First CSI Feedback In Response To Transmitting The First Trigger Frame” (Claim 12) / “When The Number Of The One Or More Station Information Fields In The NDPA Is Greater Than One, ... Receiving Second CSI Feedback In Response To Transmitting The**

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<sup>4</sup> Defendants also criticize Atlas’s “alternative construction[s]”—presumably referring to the alternative constructions for these terms that Atlas proposed in the related *Sercomm/ASUS* and *OnePlus* cases. Dkt. 41 (Op. Br.) at 25. But in view of the guidance in this Court’s claim construction order and memorandum in the *Sercomm/ASUS* case (PX E at 54-55), Atlas no longer presents alternative constructions.

**Second Trigger Frame” (Claim 19)**

| <b>Atlas’s Construction</b> | <b>Defendants’ Construction</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain and ordinary meaning. | <p>Indefinite. If not indefinite, the claims should be construed as set forth below.</p> <p>Claim 1: determining an exact value of a number of one or more station information fields in the NDPA; .... in response to (i) determining that the value of the number is one, which indicates that there is only one station information field in the NDPA and (ii) receiving the NDP, transmitting first Channel State Information (CSI) feedback to an access point</p> <p>Claim 2: when the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, ... transmitting the first CSI feedback to the access point in response to receiving the first trigger frame</p> <p>Claim 8: when the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, ... transmitting second CSI feedback to the access point in response to receiving the second trigger frame</p> <p>Claim 11: when a station determines that the value of a number of the one or more station information fields is one, which indicates that there is only one station information field in the NDPA, receiving first Channel State Information (CSI) feedback transmitted in response to the NDP having only one station information field</p> <p>Claim 12: when the station determines that the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, ... receiving the first CSI feedback in response to transmitting the first trigger frame</p> <p>Claim 19: when the station determines that the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, ... receiving second CSI feedback in response to transmitting the second trigger frame</p> |

As this Court has recognized, these terms require no construction, and when read in light of the entire claim, are understood by a POSITA with at least reasonable certainty. PX E (*Sercomm/ASUS* CC Memo) at 61-67 (term #12); Shoemake Dec., ¶¶91-103.

Claims 1 and 11 recite methods of communicating channel state information between wireless devices, such as a station device (“STA”) and an access point device (an “AP”). In Claim

1, the STA first receives an NDPA that “include[es] one or more station information fields.” DX 6 (’919) at 32:66-67. Upon receiving the NDPA frame, the STA “determin[es] exactly a number of the one or more station information fields.” *Id.* at 33:1-2. As explained later in the claim, “the number of the one or more station information fields in the NDPA is the cardinality<sup>5</sup> of the one or more station information fields in the NDPA.” *Id.* at 33:8-10. In other words, the STA counts the number of station information fields in the NDPA, and that number is exactly the number of elements in the set made up of all the station information fields. If the STA “determine[es] that the number of station information fields in the NDPA is one,” the STA transmits a feedback frame after receiving a Null Data Packet. *Id.* at 33:4-7. Claim 1 does not limit the action taken when there is more than one station information field.

Claim 11 claims this method from the perspective of the AP. DX 6 (’919) at 33:54-34:11. The AP sends an NDPA with a number of station information fields to the STA, followed by an NDP. *Id.* at 34:1-4. When the NDPA only includes one station information field, the AP receives feedback from the STA. *Id.* at 34:5-8. Like Claim 1, Claim 11 does not limit the action taken when there is more than one station information field.

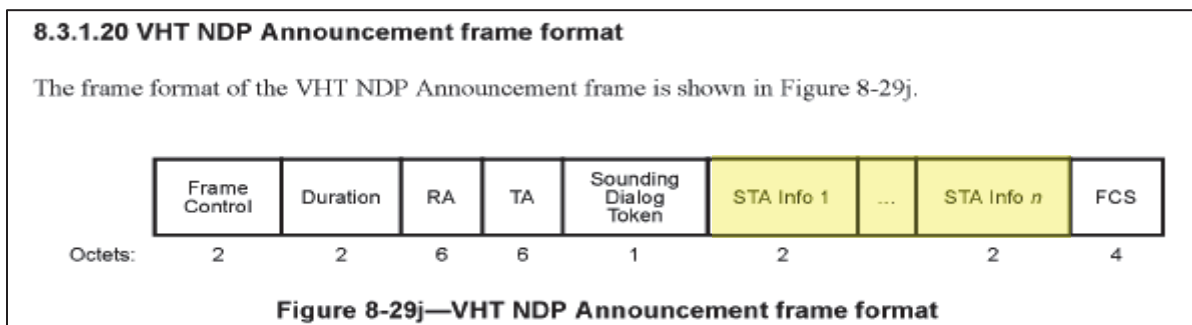
Claims 2 and 12 recite what happens when the number of station information fields is greater than one. DX 6 (’919) at 33:11-16, 34:12-17. In that case, the AP transmits (or the STA receives) a trigger frame before receiving a feedback frame. *Id.* Claims 8 and 19 add transmission and reception of a second trigger frame and second feedback frame. *Id.* at 33:39-44, 34:45-50.

As an initial matter, a POSITA understands that an NDPA may contain a set of one or more station information fields. Shoemake Dec., ¶¶99-100. The NDPA is a type of frame used in versions

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<sup>5</sup> As explained further below, “cardinality” is a mathematical term meaning: “The number of elements in a set.” Shoemake Dec., ¶108; PX W (Webster Dict.) at ATLAS-00033138, PX X (IEEE Dict.) at ATLAS-00033143.

of 802.11 that predate the '919 Patent. As illustrated in 802.11ac (which is mentioned in the '919 at 1:46-47), an NDPA includes a set of station information fields—"STA Info 1" to "STA Info  $n$ ":



PX J (802.11ac-2013) at ATLAS-00031988 (highlighting added). In this image, the NDPA includes  $n$  number of station information fields. The '919 Patent also explains that a NDPA may "include[] one or more station information field[s]...." DX 6 ('919) at 3:63-64.

The '919 Patent builds on this NDPA frame by describing several embodiments that use the number of station information fields to decide what feedback method to use. The '919 Patent describes two embodiments in Figs. 8A and 8B and the related discussion. Shoemaker Dec., ¶¶96-98. In both embodiments, an AP sends a NDPA followed by an NDP. Then, in Fig. 8A, a STA responds by sending feedback after a standoff period. DX 6 ('919) at 18:63-19:10. Alternatively, in Fig. 8B, the STA sends its feedback only after receiving a MU trigger. *Id.* at 19:11-32. "Which of the first sounding procedure and the second sounding procedure is used is ***indicated by a number of per-station information fields in the NDPA frame.***" *Id.* at 18:50-55 (emphasis added). The STA uses the Fig. 8A method when the NDPA "indicates only a single station (itself)," and the STA uses the Fig. 8B method when the NDPA "indicates a plurality of stations including itself." *Id.* at 18:63-19:3, 19:16-32. In the case of claims 1, 11 and their dependent claims, this distinction is made by determining the number of station information fields in the NDPA, *i.e.*, some number between 1 and  $n$ . Similar embodiments are described in '919 columns 3 through 5.

Despite the '919 Patent's description of this conditional method, Defendants contends that

these claims are impossible to practice as drafted or indefinite because the dependent claims are allegedly broader than the independent claims. Dkt. 41 (Op. Br.) at 27-29. Alternatively, Defendants contend these terms require construction. *Id.* Each of these issues has been resolved by courts already, and this case should be no different.

- a. *As this Court has recognized, the dependent claims are not indefinite and need no construction.*

Defendants’ construction attempts to eliminate the “determining a number” and “in response to determining” language from the claims. Contrary to the “one or more” language of the claims, Defendants argue that there must always be only one station information field in the NDPA in the independent claims. The Court has already rejected this exact argument. PX E (*Sercomm/ASUS CC Order*) at 61-67 (term #12).

As explained above, the intrinsic record describes a process by which a station, in the case of claim 1, receives an NDPA with one or more station information fields, determines how many station information fields there are, and if the station determines there is only one field, performs certain actions in response. *See Phillips*, 415 F.3d at 1314 (“[C]laims must be read in view of the specification, of which they are a part.”) (quotation omitted). Claim 1 is silent on what the station does if there is more than one station information field and would allow the station to take any action or no action in that situation. The dependent claims, in particular claim 2, add the second part of this contingent process—when there is more than one station information field a different action is taken. *See Phillips*, 415 F.3d at 1314 (“Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.”); *see also Hytera*, 841 F. App’x 210 at 216-218 (reviewing the construction of a claim that “requires that a specific action be taken in response to each of two alternative specified conditions”). Claim 11 and its dependents describe this from the perspective of a sending device.

Defendants’ argue the claims are a “nonsensical and require an impossibility,” but the Court has already addressed rejected this argument. As the Court previously explained, this process could also be described by the following pseudo-code:

| Line | Lim  | Code                                                                                    |
|------|------|-----------------------------------------------------------------------------------------|
| 1    | 1[d] | if (number of the one or more station information fields in NDPA == 1) then             |
| 2    | 1[d] | transmit first CSI feedback in response to receiving the NDP                            |
| 3    | 1[d] | else                                                                                    |
| 4    | 1[d] | do not transmit first CSI feedback in response to receiving the NDP                     |
| 5    | 1[d] |                                                                                         |
| 6    | 2    | if (number of the one or more station information fields in NDPA > 1) then              |
| 7    | 2    | transmit the first CSI feedback in response to receiving the first trigger frame        |
| 8    | 2    | else                                                                                    |
| 9    | 2    | do not transmit the first CSI feedback in response to receiving the first trigger frame |
| 10   | 2    | end if                                                                                  |
| 11   | 1[d] | end if                                                                                  |

PX E (*Sercomm/ASUS* CC Order) at 66. As the Court explained, “it is obvious that it is impossible for both ‘if’ statements (lines 1 and 6) to evaluate as true. Therefore, Claim 2 is not nonsensical as it does not recite an impossible situation (i.e., the number of the one or more station information fields in NDPA needs to be equal to both one and greater than one).” *Id.* This reasoning applies equally to Defendants’ arguments here.

Defendants’ real argument is that this conditional claim is improper. But, Defendant cites no cases supporting such a conclusion. Nor has the Federal Circuit ever reached such a conclusion. *See, e.g., Hytera*, 841 F. App’x 210 at 216-218. The Court should reject Defendants’ argument that these claims are indefinite.

b. *The order of operations of claims 1 and 11 are not ambiguous and require no construction.*

Defendants next argue that if the claims are not indefinite, they require construction. Defendants argue that the two “in response to” terms are ambiguous because it is not clear “whether the CSI feedback is transmitted in response to a station’s analysis of station information

fields only, or in response to both that analysis and receipt of an NDP.” Dkt. 41 (Op. Br.) at 28. But as explained above, the claims are clear: using Claim 1 as an example, the STA “determine[es] that the number of station information fields in the NDPA is one,” and if so, the STA transmits a feedback frame after receiving a Null Data Packet. *See also* Shoemake Dec., ¶¶93-100. No canon of claim interpretation suggests the independent claims would be infringed when there is only one station information field, but feedback is transmitted without an NDP first being received (or sent).

Defendants’ proposed construction is wrong for two additional reasons. First, the proposed construction adds ambiguous “value” language. Second, it adds that the feedback is transmitted “to an access point.”

As to the “value” language, Claim 1 includes the step of “determining exactly a number of the one or more station information fields in the NDPA” and then explains that “the number of the one or more station information fields in the NDPA is the cardinality of the one or more station information fields in the NDPA.” As the Patentee explained to the examiner “the cardinality is a number of elements in a set or group.” PX Y (’919 FH) at ATLAS-00019155; *see also* Shoemake Dec., ¶108 (“As an initial matter, ‘cardinality’ is a common term in mathematics meaning ‘the number of elements in a set.’”); PX W at ATLAS-00033138; PX X at ATLAS-00033143. This addition clarified the claims by explaining that the “number” is the cardinality of the station information fields, e.g., the total number of fields in the set of station information fields. PX Y (’919 FH) at ATLAS-00019162, ATLAS-00019206; Shoemake Dec., ¶¶111-112.

Defendants’ definition, on the other hand, introduces ambiguity because it is not clear if the “value” is the cardinality or the index of a station information field. As Dr. Shoemake explains, this “value” could refer to either the value of a particular station information field directed, e.g., the index, or the total number of fields (as claimed). Shoemake Dec., ¶¶101-102.

Turning to Defendants’ addition of an “access point” to the claims, though the example of an AP is used throughout this discussion, the claims of the ’919 Patent are not limited to an access point and do not mention an access point. *See Liebel-Flarsheim Co.*, 358 F.3d at 913 (claims are not limited to the preferred embodiment absent clear disavowal). In sum, the claims are clear as written, while Defendants’ proposed construction is ambiguous and should be rejected.

**2. “Wherein the number of the one or more station information fields in the NDPA is the cardinality of the one or more station information fields in the NDPA” (claims 1, 11)**

| <b>Atlas’s Construction</b>                                                                                                                                                                    | <b>Defendants’ Construction</b>                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| plain and ordinary meaning<br>Alternatively, “wherein the number of the one or more station information fields in the NDPA is the number of elements in the set of station information fields” | plain meaning: wherein the number of the one or more station information fields in the NDPA is the number of the one or more station information fields in the NDPA. This plain meaning renders the claims indefinite. |

As explained with the above term, cardinality is not indefinite; it means: “The number of elements in a set.” That discussion is incorporated here by reference. Atlas’s alternative construction simply inserts the definition of “cardinality” into the claim. Defendants’ construction eliminates “cardinality” from the claims and does not provide any alternative language that serves the same clarifying function. Defendants’ construction also introduces ambiguity because it is not clear if the “number” is the cardinality or the index of a station information field. As Dr. Shoemaker explains, without “cardinality,” “the number” could refer to either the value of a particular station information field directed, e.g., the index, or the total number of fields (as claimed). Shoemaker Dec. at ¶¶110, 112.

The remainder of Defendants’ argument is premised on its position that the NDPA contains only one station information field in claims 1 and 11. Dkt. 41 (Op. Br.) at 29. As explained for the limitation above, this argument should be rejected. *See supra*.

**G. U.S. Patent No. 10,756,851****1. “Scheduling extension” (claims 1, 2, 7, 8)**

| <b>Atlas’s Construction</b>                                                                          | <b>Defendants’ Construction</b>                                                                    |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Plain and ordinary meaning: “an extension to the control field that includes scheduling information” | “an extension appended to the control field that is dedicated to including scheduling information” |

The Court previously construed this term, adopting Atlas’ proposed construction and rejecting Defendants’ “appended” construction. PX E (*Sercomm/ASUS* CC Order) at 68-75.

Defendants begin by arguing this term must be limited to a “field that is *dedicated to* including scheduling information.” Dkt. 41 (Op. Br.) at 30. They base this argument on the fact that the applicant amended the claim term “an extension” to “a scheduling extension” during prosecution. *Id.* This amendment, they argue, gives rise to “prosecution-history estoppel.” *Id.*

Prosecution history estoppel (“PHE”) is a concept that limits the application of the doctrine of equivalents, but does not limit literal infringement. *Pac. Coast Marine Windshields Ltd. v. Malibu Boats, LLC*, 739 F.3d 694, 700 (Fed. Cir. 2014) (“prosecution history estoppel limits a patentee’s ability to recover under the doctrine of equivalents, but does not limit literal infringement”). Because Atlas asserts literal infringement of all claims, PHE does not apply.

Moreover, even if PHE was applicable (it is not), it would not support Defendants’ requirement that the field is “*dedicated to* including scheduling information.” The phrase “dedicated to” does not appear anywhere in the prosecution history. Atlas’ proposed construction already requires that the extension “includes scheduling information.” It is unclear what Defendants mean by “dedicated to” or where this concept is coming from.

Finally, Defendants argue that the scheduling extension must be “appended to” the control field because this is how it is done in the example embodiment of Figure 13. Dkt. 41 (Op. Br.) at 31-32. As this Court has held, Figure 13 is just an example and does not limit the plain and ordinary

meaning of this term. PX E (*Sercomm/ASUS* CC Order) at 75 (“Defendants’ proposed construction is based on Figure 13, but the specification describes that as an exemplary embodiment. *Id.* at 2:9–10 (‘FIG. 13 illustrates an example of a control field of a data frame.’). As such, Defendants’ proposed construction improperly limits the claim term to an embodiment.”). And the Court has already considered and rejected this “appended” construction. *Id.* at 74 (“Defendants’ proposed construction narrows the claim language by requiring that the scheduling extension be appended to the end ... While ‘appending’ an extension to the end of the control field falls within the meaning of ‘includes,’ ‘append’ is not coextensive with ‘includes.’”).

## **VI. CONCLUSION**

For the foregoing reasons, the Court should adopt Atlas’s constructions.

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Respectfully submitted,

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**CERTIFICATE OF SERVICE**

The undersigned certifies that on March 2, 2023, all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document through the Court's CM/ECF system.

/s/Eric Enger

Eric Enger