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

ATLAS GLOBAL TECHNOLOGIES LLC	§	**Civil Action No. 6:22-cv-00355**
Plaintiff,	§	
	§	**Jury Trial Requested**
v.	§	
ZYXEL NETWORKS CORPORATION and ZYXEL COMMUNICATIONS CORPORATION	§	
Defendants.	§	

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

ZYXEL 1008
Page 001 (of 62)

Plaintiff Atlas Global Technologies LLC ("Atlas") submits its Complaint against Defendants Zyxel Networks Corporation and Zyxel Communications Corporation (collectively "Zyxel") and requests a trial by jury. Atlas alleges as follows upon actual knowledge with respect to itself and its own acts and upon information and belief as to all other matters:

NATURE OF THE ACTION

1. This is an action for patent infringement brought by Atlas as the owner of the patents asserted in this Complaint. Atlas alleges that Zyxel infringes U.S. Patent Nos. 9,531,520 ("the '520 Patent"); 9,763,259 ("the '259 Patent"); 9,825,738 ("the '738 Patent"); 9,848,442 ("the '442 Patent"); 9,912,513 ("the '513 Patent"); 9,917,679 ("the '679 Patent"); 10,020,919 ("the '919 Patent"); 10,153,886 ("the '886 Patent"); and 10,756,851 ("the '851 Patent") (collectively, the "Asserted Patents").

2. Atlas alleges that Zyxel both directly and/or indirectly infringes each of the Asserted Patents. Zyxel directly infringes the method claims of the Asserted Patents by using the Accused Products (described below) in the United States without a license. Zyxel directly infringes the apparatus claims of the Asserted Patents by making, using, selling, offering to sell, and/or importing the Accused Products in the United States without a license.

3. In addition to infringing directly, Zyxel also indirectly infringes the method claims of the Asserted Patents by inducing third parties—including Zyxel's customers and end-users of Zyxel's products—to use the Accused Products in the United States in an infringing manner, as directed and instructed by Zyxel. Zyxel also indirectly infringes the apparatus claims of the Asserted Patents by inducing others to make, use, sell, offer to sell, and/or import the Accused Products in the United States in an infringing manner, as directed and instructed by Zyxel.

4. Atlas seeks damages and other compensatory relief for Zyxel's prior and continued infringement of the Asserted Patents.

THE PARTIES

5. Atlas is a limited liability company organized under the laws of Texas with its principal place of business at 4413 Spicewood Springs Rd., Suite 101, Austin, TX 78759.

6. Atlas is the assignee and owner of the Asserted Patents through assignment on February 19, 2021, from Newracom, Inc., ("Newracom") to Atlas. Newracom was the original owner of the Asserted Patents through assignment from the named inventors.

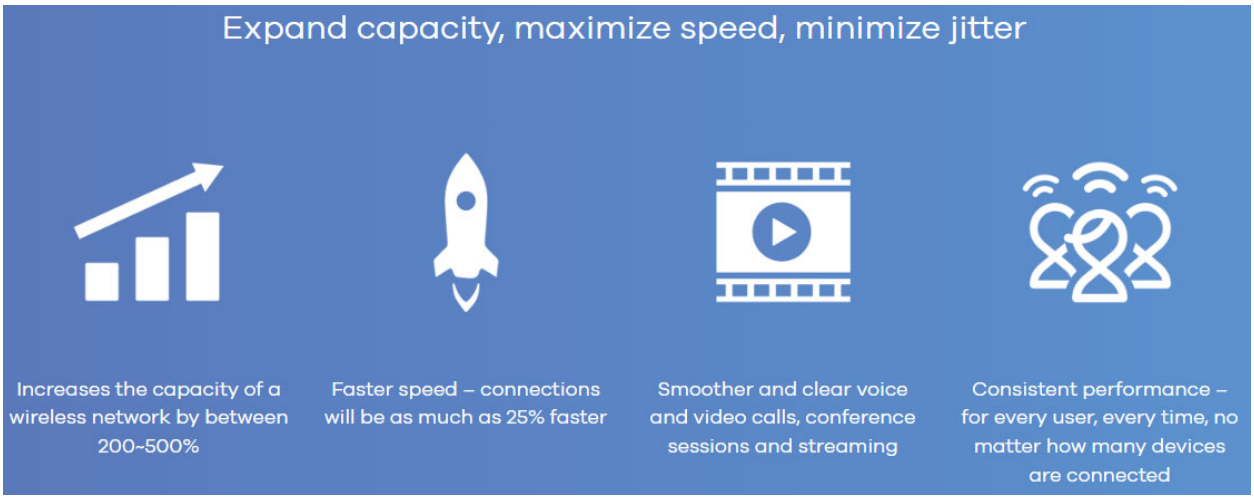
7. On information and belief, both Defendants Zyxel Networks Corporation and Zyxel Communications Corporation are Taiwanese corporations with their principal place of business at No. 2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30076, Taiwan.

8. According to its website, Zyxel was founded over 30 years ago and represents on its website that it is a global company that "serve[s] 150 markets, with over 100 million Zyxel devices." https://www.zyxel.com/about_zyxel/company_overview.shtml.

9. On information and belief, Zyxel is engaged in research and development, manufacturing, importation, distribution, sales, and related technical services for home and business networks, including particularly devices designed to operate on Wi-Fi 6 networks consistent with the Wi-Fi 6 (or 802.11ax) protocols. Zyxel's Wi-Fi 6 products are made outside the United States of America and then are imported into the United States, distributed, and sold to end-users via the Internet and via distribution partners, retailers, reseller partners, and solution partners. Those sales occur in the United States, and throughout Texas, including in this District. Zyxel represents to its customers that it is has a "global reach" that includes North America. https://service-provider.zyxel.com/na/en/about-us.

10. Zyxel affirmatively touts Wi-Fi 6 technology and its advantages to its prospective customers who purchase Wi-Fi products. For example, Zyxel tells its customers that "WiFi 6 – or 802.11ax – is the latest and the best wireless networking standard" and it allows their customers' "devices to respond in higher density environments." https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. According to Zyxel, "With WiFi 6 there is no contention, no waiting, no degradation in performance." *Id.* Zyxel claims this improvement "make WiFi 6 a great technology for any organization that … has many users and devices connected simultaneously." *Id.* As Zyxel notes, "[w]herever there are going to be large numbers of people … connecting to the wireless network on a daily basis . . .

significant efficiency and performance gains will be delivered by WiFi 6" *Id.* Zyxel includes this graphic on its website highlighting the benefits of Wi-Fi 6:



Id. Zyxel even produced a seven-page whitepaper on Wi-Fi 6 that touts Wi-Fi 6's "significant benefits over 802.11ac in terms of speed and even more significantly, the density of users it can support." https://www.zyxel.com/library/assets/tech-library/whitepaper/wifi6.pdf.

JURISDICTION

11. This is an action arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq*. Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

12. This Court has personal jurisdiction over Zyxel. Atlas is informed and believes, and on that basis alleges, that Zyxel conducts business and has committed acts of patent infringement and/or has induced acts of patent infringement by others in this judicial district, the State of Texas, and elsewhere in the United States. Zyxel has purposefully directed infringing activities at residents of the State of Texas, and this litigation results from those infringing activities. Zyxel also regularly sells (either directly or indirectly), its products within this district. For example, Zyxel has placed and continues to place infringing products into the stream of commerce via an established distribution channel, such as its partner networking solution providers, with the knowledge or understanding that such products are being and will continue to be sold in this Judicial District and the State of Texas. Zyxel is subject to this Court's specific and/or general

personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial and pervasive business in this State and judicial district, including at least part of its infringing activities alleged herein and deriving substantial revenue from goods sold to Texas residents.

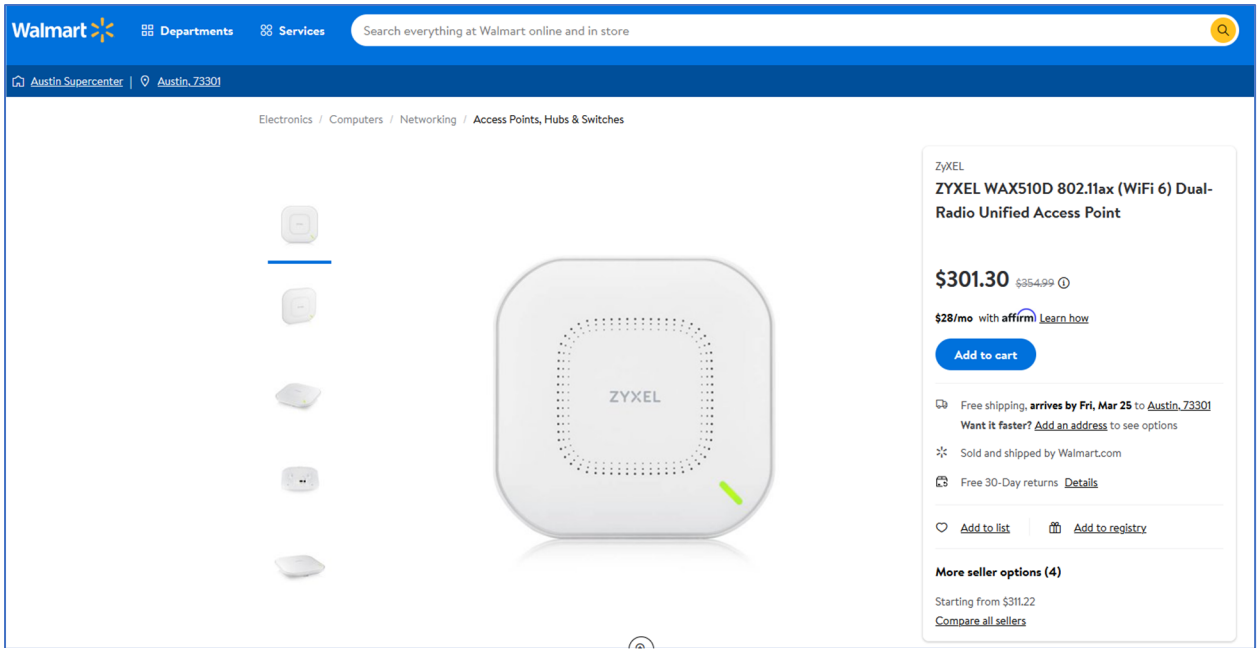
13. Upon information and belief, Zyxel is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, based on its substantial business activities conducted in the State of Texas and this Judicial District, including: (1) its infringing activities, as alleged herein, by which Defendant purposefully avails itself of the privilege of conducting its business activities in this State and this Judicial District and, thus, submits itself to the jurisdiction of this Court; and (2) regularly doing or soliciting business, engaging in other persistent conduct targeting residents of Texas and this Judicial District, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported to and targeting Texas residents and residents of this Judicial District vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. Such a presence furthers the development, design, manufacture, importation, distribution, sale, and use (including by inducement) of infringing Zyxel Products in Texas, including in this District. For example, Zyxel is the applicant for FCC registrations for the sale and use of the Accused Products in the U.S., including being identified on labels as the manufacturing party. *See, e.g.*, AX1800 Dual-Band WiFi 6 System Label Diagram, *available at* https://fccid.io/I881WSM20/Label/Label-Sample-Label-Location-5734550 (identifying Zyxel Communications Corporation as the FCC Applicant); *see also* https://fccid.io/I88.

14. This Court has personal jurisdiction over Zyxel, directly and/or through the activities of Zyxel intermediaries, agents, related entities, distributors, importers, customers, subsidiaries, and/or consumers. Through direction and control of these various entities, Zyxel has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that

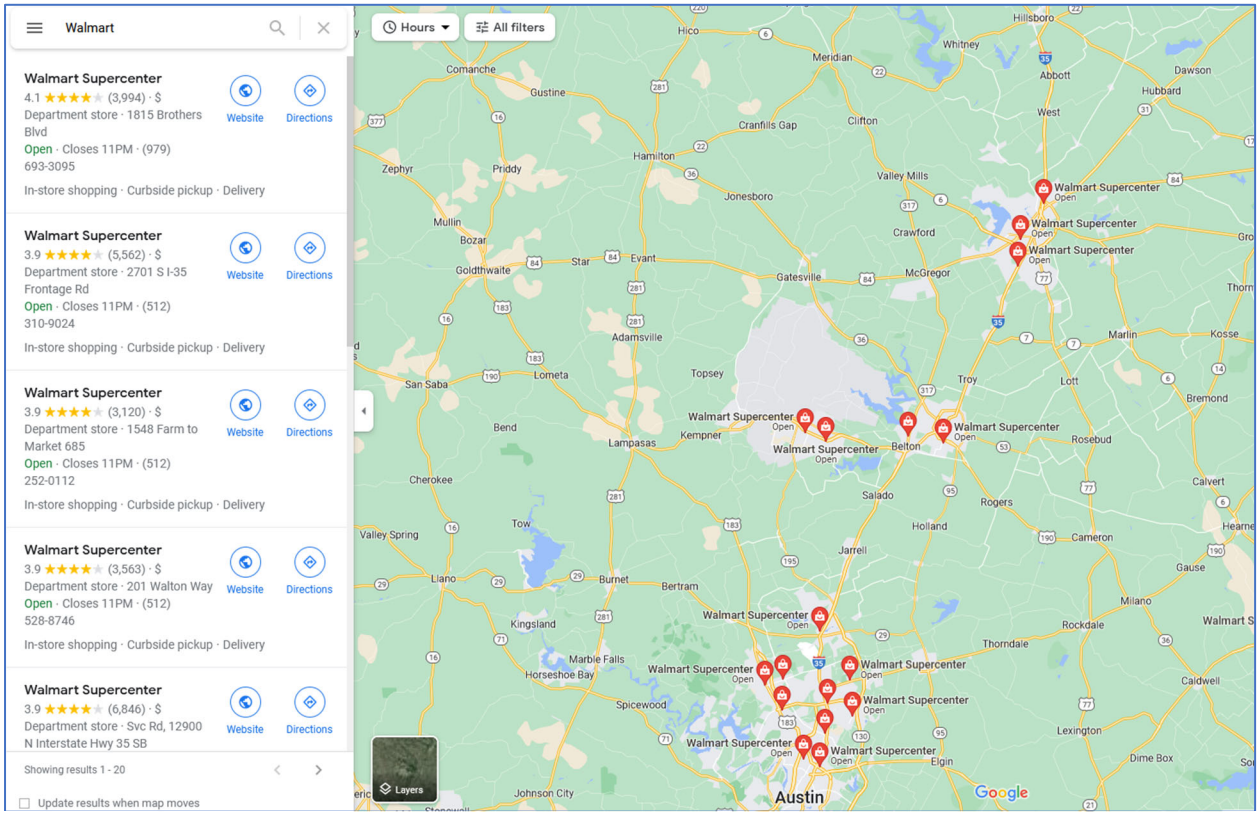
personal jurisdiction over Zyxel would not offend traditional notions of fair play and substantial justice.

15. Upon information and belief, Zyxel, directly via its agents and distribution partners, retailers (including national retailers), reseller partners, solution partners, brand ambassadors, and other service providers in the U.S., has placed and continues to place infringing Accused Products into the U.S. stream of commerce. Zyxel has placed such products into the stream of commerce with the knowledge and understanding that such products are, will be, and continue to be sold, offered for sale, and/or imported into this Judicial District and the State of Texas. *See Litecubes, LLC v. Northern Light Products, Inc*., 523 F.3d 1353, 1369-70 (Fed. Cir. 2008) ("[T]he sale [for purposes of § 271] occurred at the location of the buyer."); *see also Semcon IP Inc. v. Kyocera Corporation*, No. 2:18-cv-00197-JRG, 2019 U.S. Dist. LEXIS 74904, at *6–*8 (E.D. Tex. May 3, 2019) (purchases of infringing products outside of the United States for importation into and sales to end users in the U.S. may constitute an offer to sell under § 271(a)).

16. Zyxel utilizes established distribution channels to distribute, market, offer for sale, sell, service, and warrant infringing products directly to consumers and other users in the U.S., including providing links via its website to online stores, retailers, resellers, distributors, and solution partners offering such products and related services for sale. *See* https://www.zyxel.com/us/en/where_to_buy/ecommerce_us.shtml. On information and belief, such Zyxel Products have been sold in retail stores within this Judicial District and in Texas, including well-known and widely-used retailers including Amazon, Walmart, Staples, and more. For example, the Zyxel WAX510D (which supports Wi-Fi 6 operation) is available for purchase at Walmart, which has retail locations in this district:



https://www.walmart.com/ip/ZYXEL-WAX510D-802-11ax-WiFi-6-Dual-Radio-Unified-Access-Point/890793580.



17. Based on Zyxel's connections and relationship with these retailers and distributors, Zyxel knows that Texas is a termination point of its established distribution channels, including the

providers and online stores, such as Amazon, Walmart, Staples, and Newegg offering Zyxel Products to users in Texas. Zyxel, therefore, has purposefully directed its activities at Texas, and should reasonably anticipate being brought in this Court, at least on this basis. *See ICON Health & Fitness, Inc. v. Horizon Fitness, Inc.*, No. 5:08-cv-26, 2009 U.S. Dist. LEXIS 34767, at *40 (E.D. Tex. Mar. 26, 2009) ("[a]s a result of contracting to manufacture products for sale in" national retailers' stores, the defendant "could have expected that it could be brought into court in the states where [the national retailers] are located").

18. These suppliers and distributors import, advertise, offer for sale, and sell Zyxel Products via their websites to U.S. consumers, including to consumers in Texas. Based on Zyxel's connections and relationships, including supply contracts and other agreements with the U.S. distributors and suppliers, Zyxel knows and has known that Texas is a termination point of the established distribution channels for infringing Zyxel Products. Zyxel has purposefully directed its activities at Texas, and should reasonably anticipate being brought in this Court, at least on this basis. *See Ultravision Tech.s, LLC v. Holophane Eur. Ltd.*, No. 2:19-cv-00291, 2020 U.S. Dist. LEXIS 112148, at *13-14 (E.D. Tex. Apr. 23, 2020) (finding sufficient to make a prima facie showing of personal jurisdiction allegations that "Defendants either import the products to Texas themselves or through a related entity"); *see also Bench Walk Lighting LLC v. LG Innotek Co.*, 530 F. Supp. 3d 468, at 485-87 (D. Del. 2021) (denying motion to dismiss for lack of personal jurisdiction based on the foreign defendant entering into supply contract with U.S. distributor and the distributor sold and shipped defendant's products from the U.S. to a customer in the forum state).

19. In the alternative, this Court has personal jurisdiction over Zyxel under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law; Zyxel is not subject to the jurisdiction of the courts of general jurisdiction of any state; and exercising jurisdiction over Zyxel is consistent with the U.S. Constitution.

VENUE

20. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1400(b), 28 U.S.C. § 1391(c), and *Brunette Mach. Works, Ltd. v. Kockum Indus., Inc.*, 406 U.S. 706 (1972). Venue is proper in this judicial district pursuant to 28 U.S.C. §1391(c)(3) because, among other things, Zyxel is not a resident of the United States, and thus may be sued in any judicial district, including this one. *See also In re HTC Corporation*, 889 F.3d 1349, 1357 (Fed. Cir. 2018) ("The Court's recent decision in *TC Heartland* does not alter" the alien-venue rule.).

21. On information and belief, Zyxel also has significant ties to, and presence in, the State of Texas and the Western District of Texas, making venue in this judicial district both proper and convenient for this action. *See* ¶¶ 8-10 and 12-19 above.

THE 802.11 STANDARD

22. Wireless Local Area Networks (WLANs) have become ubiquitous with the rise of mobile telecommunication devices. These wireless networks operate using an unlicensed band of 2.4 GHz, 5 GHz, and/or 6 GHz. The operation of WLANs is standardized by the Institute of Electrical and Electronics Engineers ("IEEE") Part 11 under the name of "Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications," also known as "Wi-Fi."

23. After an original Wi-Fi standard (802.11) was published in 1999, new standard versions have been published by amendments. For example, the IEEE standard 802.11a (IEEE Std 802.11a-1999) was published in 1999 and the IEEE standard 802.11g (IEEE Std 802.11g-2003) was published in 2003. Subsequently, the IEEE standard 802.11n (IEEE Std 802.11n-2009) for enhancements for higher throughput (HT) was published in 2009, and the IEEE standard 802.11 ac (IEEE 802.11 ac-2013) for enhancements for very high throughput (VHT) was published in 2013. These prior versions of the 802.11 standard are called legacy standards.

24. As wireless devices proliferated, the need arose to improve the performance of Wi-Fi networks in high-density scenarios. To address this issue, an IEEE task group began working on a new standard high efficiency (HE) WLAN to enhance the throughput-per-area of Wi-Fi

networks. This standard became known as 802.11ax, also commonly referred to as "Wi-Fi 6." The first draft of the 802.11ax Standard was published in March 2016. The IEEE ultimately approved the final version of the 802.11ax-2021 Standard on February 9, 2021.

25. Wi-Fi 6 provides numerous benefits over previous Wi-Fi networks, which the industry has recognized and actively promoted. For example, Qualcomm has stated that Wi-Fi 6 provides "up to 4x increase in capacity," "higher efficiency," and "improved coverage & performance" over previous Wi-Fi standards. https://www.qualcomm.com/media/documents/files/802-11ax-wi-fi-with-unprecedented-capacity.pdf. Intel has stated that Wi-Fi 6 offers 9.6 Gbps of maximum throughput, whereas Wi-Fi 5 offered a maximum throughput of 3.5 Gbps. https://www.intel.com/content/www/us/en/gaming/resources/wifi-6.html. Intel has also stated that Wi-Fi 6 can result in up to 75% less latency. *Id*. Cisco has stated that Wi-Fi 6 "lets access points support more clients in dense environments and provide[s] a better experience for typical wireless LAN networks." https://www.cisco.com/c/en/us/products/collateral/wireless/white-paper-c11-740788.html. Similarly, Broadcom has stated that Wi-Fi 6 will allow devices to "work 6X faster," "deliver up to 7X better battery life," and "expand the Wi-Fi range up to 4X." https://docs.broadcom.com/doc/80211ax-WP. Broadcom touts the advantages of 802.11ax relative to prior versions of the Standard, noting "While previous Wi-Fi standards were designed to maximize peak speeds for a limited number of devices and users, this standard improves user experience in dense environments by maximizing average speeds for a large number of devices while preserving the benefits of legacy Wi-Fi technologies, such as backwards compatibility and low cost." *Id.* According to Broadcom, IEEE 802.11ax achieves these advancements through various primary features, including Orthogonal Frequency Division Multiplexing Multiple Access (OFDMA), which increases spectrum capacity by slicing channels into smaller chunks, which together host multiple devices simultaneously; Multi-User MIMO (MU-MIMO) technology to increase channel capacity when simultaneously servicing multiple devices using the same frequency chunks; Smarter access points capable of providing improved outdoor connectivity through longer guard intervals. *Id.* Among the various improvements obtained from

802.11ax, outdoor devices that implement 802.11ax can obtain increased throughput of 50% relative to prior versions of the Standard. *Id.*

26. Defendant Zyxel also actively touts benefits of Wi-Fi 6, calling it "[a] true game changer." https://service-provider.zyxel.com/global/en/wifi-6-solutions#benefits. Zyxel claims that Wi-Fi 6 can "increase[] the capacity of a wireless network by 200~500%" and "connections will be as much as 25% faster" compared to Wi-Fi 5 networks. https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Moreover, Zyxel touts the benefits provided by the inventions. For example, Zyxel highlights MU-MIMO and Orthogonal Frequency Division Multiple Access (OFDMA) as particular advantages of multi-user operations in Wi-Fi 6, noting that these technologies "improve overall network capacity and allow multiple devices to run smoothly and concurrently in high-traffic environments." https://service-provider.zyxel.com/global/en/mpro-mesh-solutions. Zyxel also notes that "essentially, there are two technologies that make a real difference in WiFi 6 -- orthogonal frequency-division multiple access (OFDMA), and spatial re-use, which is also referred to as Basic Service Set (BSS) colouring." https://www.zyxel.com/library/assets/tech-library/whitepaper/wifi6.pdf.

NEWRACOM

27. The Asserted Patents were all invented and developed by engineers and scientists at Newracom, a leader and pioneer in wireless communication technology. Newracom was founded in 2014 by a group of 28 former employees of the Electronics & Telecommunications Research Institute ("ETRI"), a research institution funded by the government of Korea.

28. Newracom was a major contributor to the 802.11ax-2021 Standard, providing numerous technical contributions to that Standard version which have proven to be highly beneficial in improving the bandwidth of wireless transmissions, while minimizing latency among the devices connected to the wireless local area network. Notably, Newracom has been acknowledged as one of the leaders in both number of technical submissions and the number of submissions ultimately adopted by the 802.11ax Task Group. For example, according to an IAM Industry Report dated

April 25, 2018, Newracom was recognized as the world's fourth most active technical contributor to the 802.11ax Standard, behind only Qualcomm, Intel, and Huawei. *See* https://www.iam-media.com/ieees-empirical-record-success-and-innovation-following-patent-policy-updates. The contributions provided by Newracom have led to at least 188 United States patents relating to the 802.11ax Standard.

ZYXEL'S KNOWLEDGE OF NEWRACOM'S PATENTS

29. Zyxel has known that Newracom possessed patents relating to the 802.11ax Standard since at least March 11, 2015. On that date, Newracom submitted a Letter of Assurance for Essential Patent Claims ("LOA") to the IEEE. In the LOA, Newracom stated that it "may own, control, or have the ability to license Patent Claims that might be or become Essential Patent Claims."

30. Zyxel also knew of the Asserted Patents at least by June 8, 2021, when Atlas specifically notified Zyxel of the Atlas Patent Portfolio covering critical aspects of Wi-Fi technology. More specifically, on that date, Atlas sent Zyxel a letter via email to the President of Zyxel Communications, Inc., Howie Chu, notifying Zyxel that it had "recently acquired Newracom's substantial Wi-Fi 6 SEP [Standard Essential Patent] portfolio." Ex. A at 1. Further, Atlas informed Zyxel that the Asserted Patents "cover[] key improvements in Wi-Fi technology developed by Newracom's internal R&D team and adopted in the 802.11ax Wi-Fi standard." *Id.* In that initial June 8, 2021 letter, Atlas specifically invited Zyxel to license the Asserted Patents. *Id.* A physical copy of this letter was delivered to Zyxel on June 23, 2021. Ex. B. On November 15, 2021, Atlas sent via email an additional letter to Zyxel (again, via Howie Chu). Ex. C at 1.

31. During this period and continuing for several months thereafter, Atlas repeatedly notified Zyxel of Atlas's portfolio and the Asserted Patents. For example, Atlas sent Zyxel 35 emails between June 8, 2021 and February 14, 2022. Ex. D. Those emails made repeated reference to Atlas's "Wi-Fi 6 Standard Essential Patent Portfolio," and continued to press Zyxel regarding the necessity to take a license under the Atlas patent portfolio. Atlas also made frequent telephone calls to Zyxel during that time period to discuss the Asserted Patents. Zyxel received each of

these letters, emails, and phone calls. Despite learning that Atlas owned a substantial patent portfolio covering Zyxel's Wi-Fi 6 product offerings, Zyxel continued to offer for sale, sell, import, distribute, and use its infringing Wi-Fi 6 products in the United States, without making any attempt to secure a license from Atlas. Zyxel has acted with willful disregard of the Atlas Patent Portfolio, refusing to engage in substantive discussions regarding the patent portfolio, and ultimately, in refusing to take a license under any of the Atlas Patents. Zyxel has acted with willful blindness regarding the Wi-Fi 6 patent portfolio of Atlas and its need to secure a license to that portfolio.

32. In addition, and at minimum, Zyxel was aware of the Asserted Patents as of the date of filing of the filing of this Complaint.

ZYXEL'S USE OF THE PATENTED TECHNOLOGY

33. On information and belief, Zyxel makes, uses, sells, and/or offers to sell in the United States, and/or imports into the United States various devices with Wi-Fi capabilities. For example, Zyxel makes, uses, and sells Access Points ("APs") and Stations ("STAs") that support Wi-Fi 6. Zyxel's Wi-Fi 6 devices include software and hardware that implement the inventions claimed in the Asserted Patents.

34. The Accused Products include all Zyxel products that comply with the 802.11ax-2021 Standard (Wi-Fi 6), including but not limited to the following Zyxel products:

Accused Products		
WAX650S	NR5103	WAX630S
WAX610D	C4000 series	WAX510D
NWA90AX	HGW-500IX4X8-Q	NWA55AXE
NWA50AX	DX3300	NWA210AX
NWA110AX	EX3300	NR5101
NR2101	WX3401	EX5510
EX3510	EX3301	DX5510
DX4510	AX7501	WX3310
NR5103E	WX3100	EX5401
DX3301	C4000LZ	DX5410
WSM20	Multy M1	AX1800
AX6000	NBG7815	Armor G5
C3510XZ	AX5700	

https://selector.zyxel.com/type/3; https://selector.zyxel.com/type/5; https://service-provider.zyxel.com/na/en/wifi-6-solutions#featured-products; https://service-provider.zyxel.com/global/en/products/wifi-system; https://www.wi-fi.org/product-finder-results?sort_by=default&sort_order=desc&capabilities=189&companies=268. For the purpose of clarity, it is the intent of Atlas to accuse of infringement all Zyxel products that are marketed or sold into the United States market.

35. On information and belief, Zyxel uses the Accused Products in an infringing manner in the United States, both alone and jointly with its customers. For example, and on information and belief, Zyxel employees[1] use the Accused Products to perform the infringing methods in the United States at Zyxel's U.S. offices (which use Zyxel's Wi-Fi 6 products to provide a wireless network) when sending and receiving data over Zyxel's wireless networks.

36. On information and belief, Zyxel employees also use the Accused Products to perform the infringing methods in the United States when they demonstrate the infringing Wi-Fi 6 features of the Accused Products to actual and potential U.S. customers, for example at trade shows, product demonstrations, and more generally as part of selling the Accused Products. For example, Zyxel employees use the Accused Products when demonstrating their functionality to customers at trade shows. Zyxel employees regularly attend trade shows in the United States, including the yearly CES show in Las Vegas, and numerous similar events around the country and in Texas. https://www.zyxel.com/us/en/news/press_room_20200106_350306.shtml; https://service-provider.zyxel.com/na/en/events?page=1. At these events, Zyxel employees "showcase its comprehensive portfolio of . . . Wi-Fi 6 whole-home managed WiFi products . . . ." https://www.zyxel.com/us/en/news/press_room_20200106_350306.shtml.

[1] Upon information and belief, Zyxel employees primarily based overseas in Taiwan regularly travel to the United States for business purposes, and perform the infringing methods when in the United States. For example, Howie Chu, President at Zyxel Networks Corporation, is also the President of Zyxel Communications, Inc. and he performs the infringing methods when at Zyxel's Anaheim, California offices.

37. On information and belief, Zyxel employees also use the Accused Products to perform the infringing methods in the United States as part of providing customer support to Zyxel's actual and potential customers, for example when trouble-shooting customer issues and resolving technical problems.

FIRST COUNT

(Infringement of U.S. Patent No. 9,531,520)

38. Atlas incorporates by reference the allegations set forth in Paragraphs 1-37 of this Complaint as though fully set forth herein.

39. The '520 Patent, entitled "Apparatus and Method for Downlink and Uplink Multi-User Transmissions," was duly and lawfully issued on December 27, 2016. Atlas is the owner of all right, title, and interest in the '520 Patent. The '520 Patent was filed on March 23, 2016 as Application No. 15/078,920 and claims the benefit of U.S. Provisional Application No. 62/140,349, filed on March 30, 2015, and U.S. Provisional Application No. 62/137,138, filed on March 23, 2015. *See* https://patentimages.storage.googleapis.com/6e/2c/4f/d2594a2dd4685e/US9531520.pdf.

40. The '520 Patent is directed to important improvements related to triggering frames for scheduling multi-user uplink acknowledgements that were first introduced in 802.11ax. Newracom was a key contributor to the concepts and implementation details of triggering frames and uplink multi-user acknowledgements. Certain claims (*e.g.*, '520 claim 1) recite a method directed to a transmitting AP device, in which the AP transmits a downlink multi-user frame to multiple STA devices that includes information in the MAC Protocol Data Unit (MPDU) of the downlink frame which solicits an uplink acknowledgement from the STA as part of a multi-user acknowledgement frame. The Accused AP Products are configured and designed to transmit the aforementioned trigger frame and receive the aforementioned uplink multi-user acknowledgments, and they do in fact transmit and receive those frames during normal use as intended by Zyxel. Other claims (*e.g.*, '520 claim 8) recite a method directed to a STA device, in which the STA receives and processes a downlink multi-user frame includes information in the

MAC Protocol Data Unit (MPDU) of the downlink frame which solicits an uplink acknowledgement from the STA as part of a multi-user acknowledgement frame. The Accused STA Products are configured and designed to receive and process the aforementioned trigger frame and transmit the aforementioned uplink multi-user acknowledgments, and they do in fact transmit and receive those frames during normal use as intended by Zyxel..

41. Zyxel directly infringes the method claims of the '520 Patent under 35 U.S.C. § 271(a) by using the Accused Products in the United States as described in paragraphs 35-37 above. Users of the Accused Products infringe at least claims 1 and 8 of the '520 Patent when using those Accused AP Products to practice the 802.11ax Standard, as indicated in Zyxel's marketing materials for the Accused Products. The Zyxel Accused Products operate as AP devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to generate and transmit a trigger frame to multiple STAs and then simultaneously receive multi-user acknowledgment transmission from those STAs. *See e.g.*, 802.11ax-2021 § 4.3.15a (High efficiency (HE) STA); § 9.2.3 (General Frame Format); § 9.2.4.6.1 (HT Control Field); § 9.2.4.6.3a (HE variant); § 9.2.4.6a.1 (TRS Control); § 26.5.2.3.4 (TXVECTOR parameters for HE TB PPDU response to TRS Control subfield); Figure 9-2 (MAC frame format); Figures 9-19a and 9-19b; Figure 9-22a; Figure 10-14a; and Figure 27-11. Similarly, the Accused STA Products operate as STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to receive and process a trigger frame and then transmit multi-user acknowledgments. *See e.g.*, *id.*

42. For example, Figure 10-14a from the Wi-Fi 6 Standard shows the downlink multi-user frame (referred to as an "HE MU PPDU") that an AP, such as one of Zyxel's Accused AP Products, generates and transmits to a plurality of STA devices, as well as the multi-user acknowledgment transmission (referred to as "OFDMA BA") that the AP receives from the STA devices.

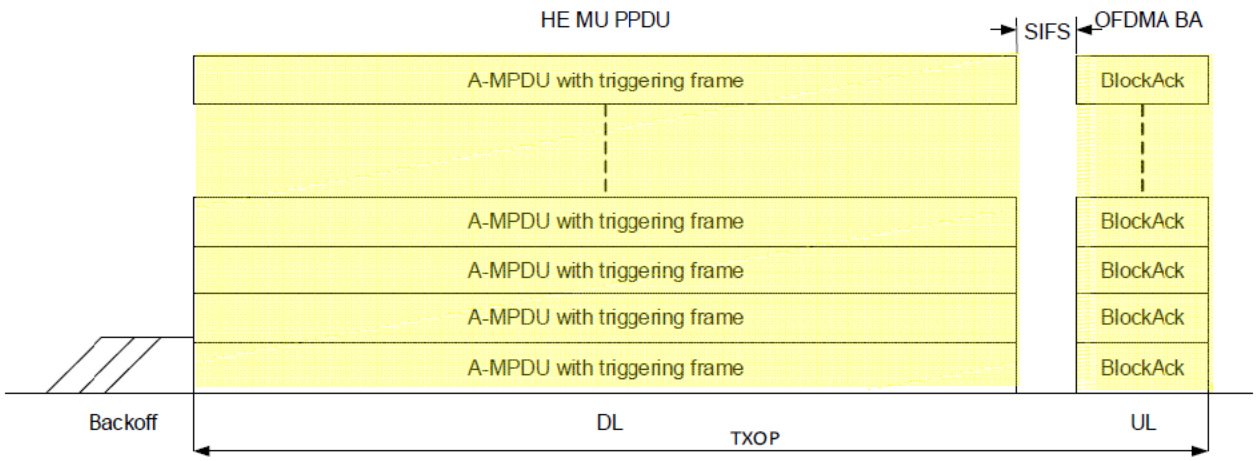
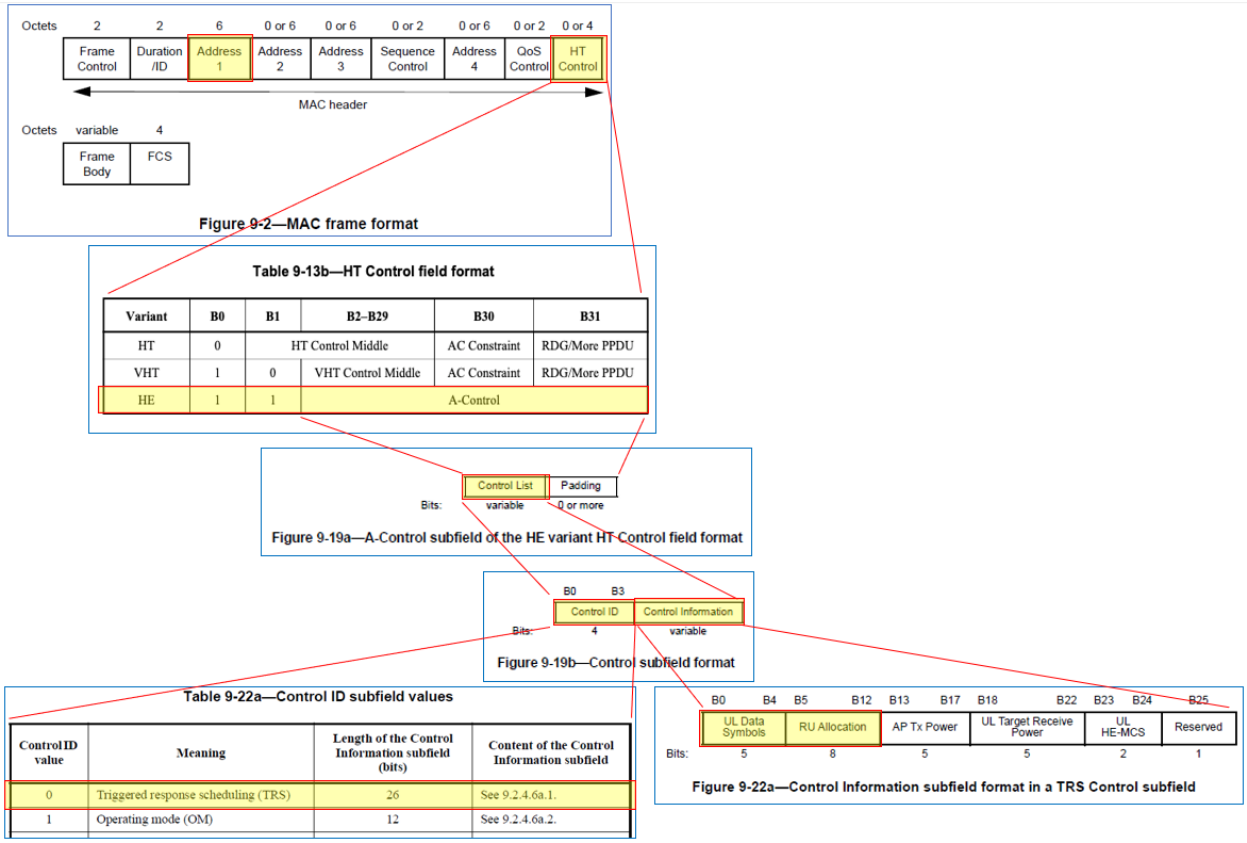


Figure 10-14a—Example of HE MU PPDU transmission with immediate UL OFDMA acknowledgment

Further, the following annotated and amalgamated figures from the Wi-Fi 6 Standard show the MAC contents of the downlink multi-user frame that Zyxel's Accused AP Products generates and transmits during normal and intended operation. As shown in Figure 9-2, the MAC frame contains a destination address (referred to as "Address 1") that identifies the intended receiver(s) of the frame. Further, the MAC frame contains an HT Control field, the possible contents of which are shown in Table 9-13b. If bits B0 and B1 of the HT Control field are "11," that indicates the HT Control field has been extended to accommodate the 802.11ax standard using the HE variant, and the A-Control subfield will be present. The A-Control subfield has a Control List subfield shown in Figure 9-19a, which in turn has Control ID and Control Information subfields shown in Figure 9-19b. The Control ID subfield may have a value of "0," which (as shown in Table 9-22a) indicates that the Control Information subfield provides Triggered Response Scheduling. And when Triggered Response Scheduling is used, the Control Information subfield has UL Data Symbols and RU Allocation subfields (as shown in Figure 9-22a), which are acknowledgment information that indicates properties for the uplink acknowledgment responsive transmission (*e.g.*, the number of OFDM data symbols and resource unit allocation for that uplink acknowledgment responsive transmission).



43. In addition to directly infringing the ’520 method claims, Zyxel also indirectly infringes the ’520 claims. Where acts constituting direct infringement of the ’520 Patent are not performed by Zyxel, such acts constituting direct infringement of the ’520 Patent are performed by Zyxel’s customers or end-users (the direct infringers) who act at the direction and/or control of Zyxel, with Zyxel’s knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the

Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

44. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claims 1 and 8 of the '520 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers with the knowledge and intent that use of those products would constitute direct infringement of the '520 Patent.

45. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused Products in an infringing manner. Thus, with full knowledge of the '520 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the '520 Patent by using the Accused Products to perform the infringing methods.

46. Zyxel's acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel's wrongful acts in an amount subject to proof at trial.

SECOND COUNT

(Infringement of U.S. Patent No. 9,763,259)

47. Atlas incorporates by reference the allegations set forth in Paragraphs 1-46 of this Complaint as though fully set forth herein.

48. The '259 Patent, entitled "Sounding Method," was duly and lawfully issued on September 12, 2017. Atlas is the owner of all right, title, and interest in the '259 Patent. The '259

Patent was filed on September 22, 2015 as Application No. 14/862,078 and claims the benefit of Korean Patent Application No. 10-2015-0116576, filed on August 19, 2015, and U.S. Provisional Application No. 62/054,270, filed on September 23, 2014. *See* https://patentimages.storage.googleapis.com/ff/7b/3b/738dfc1959ff2d/US9763259.pdf.

49. The '259 Patent relates to multi-user ("MU") sounding and feedback in a wireless network. MU transmission requires channel information for the devices to access their subchannels that have been assigned by an Access Point ("AP"). The Accused AP Products support and implement a sounding method in which subchannel allocation information is transmitted to a plurality of non-AP station ("STA") devices on the wireless network, after which a compressed beamforming report frame is received from the plurality of STA devices simultaneously. Similarly, the Accused non-AP Station ("STA") Products support and implement a sounding method in which subchannel allocation information is received from an AP on the wireless network, after which a compressed beamforming report is sent from the STA to the AP while a second compressed beamforming report is sent from a second STA.

50. The Accused AP Products transmit during normal intended operation a null data packet announcement ("NDPA") frame to a plurality of receiving STA devices. The NDPA frame includes allocation information for the plurality of receiving STA devices, informing those STA devices of the subchannels that have been allocated to those devices. The Accused AP Products then transmit a null data packet ("NDP") frame from the AP after transmitting the NDPA frame, which operates as a beamforming poll frame to the plurality of STA devices, triggering their response. After transmitting the NDP frame, the Accused AP Products receive a feedback frame from the plurality of STA devices that includes a beamforming report providing subchannel information measured on the subchannel that is allocated to each receiving device from among a plurality of subchannels into which a band is divided. Thus, a first subchannel is a subchannel that has been allocated to the first receiving device by an AP from among a plurality of subchannels through which signal transmissions may occur. The Accused AP Products will receive the feedback frame providing beamforming information regarding the first subchannel by

a first non-AP station while simultaneously receiving a second feedback frame including subchannel information measured on a second subchannel by a second non-AP station device, the second subchannel being a subchannel that has been allocated to the second non-AP device among the plurality of subchannels by the AP.

51. The Accused STA Products receive during normal intended operation a null data packet announcement ("NDPA") frame from an AP device. The NDPA frame includes allocation information for multiple receiving STA devices, informing the STA devices of the subchannels that have been allocated to those devices. The Accused STA Products then receive a null data packet ("NDP") frame from the AP after receiving the NDPA frame, which operates as a beamforming poll frame to the multiple STA devices, triggering their response. After receiving the NDP frame, the Accused STA products transmit simultaneously to the AP a feedback frame that includes a beamforming report providing subchannel information measured on a the subchannel that is allocated to the STA from among a plurality of subchannels into which a band is divided. Thus, a first subchannel is a subchannel that has been allocated to the STAs by an AP from among a plurality of subchannels through which signal transmissions may occur. The Accused STA Products are designed such that, when transmitting the feedback frame, a first STA will transmit the feedback frame providing beamforming information regarding the first subchannel while a second STA simultaneously transmits a second feedback frame including subchannel information measured on a second subchannel by a second STA, the second subchannel being a subchannel that has been allocated to the second STA from among the plurality of subchannels.

52. Zyxel directly infringes the method claims of the '259 Patent under 35 U.S.C. § 271(a) by using the Accused Products in the United States as described in paragraphs 35-37 above. Users of the Accused Products infringe at least claims 1 and 18 of the '259 Patent when using those Accused Products to practice the 802.11ax Standard. The Zyxel Accused Products operate as either AP or STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. In the case of an AP device, this includes the ability to generate and

send multi-user ("MU") downlink ("DL") transmissions to a plurality of STA devices on the wireless network and the ability to receive MU uplink ("UL") feedback frames from a plurality of STA devices. *See, e.g.*, 802.11ax-2021 § 26.7.3 (HE Sounding Protocol) and Figures 9-61a (HE NDP Announcement frame format), 9-61b (STA info field in an HE NDP Announcement frame), and 26-8 (Example of HE TB sounding). In the case of a STA device, this also includes the ability to receive multi-user ("MU") downlink ("DL") transmissions on the wireless network and the ability to transmit MU uplink ("UL") feedback frames simultaneously with a plurality of other STA devices. *See, e.g.*, 802.11ax-2021 § 26.7.3 (HE Sounding Protocol) and Figures 9-61a (HE NDP Announcement frame format), 9-61b (STA info field in an HE NDP Announcement frame), and 26-8 (Example of HE TB sounding).

53. For example, Figure 26-8 of the Wi-Fi 6 Standard shows an AP (referred to as a "HE beamformer"), such as one of Zyxel's Accused AP Products, transmitting a null data packet announcement frame to a plurality of STA devices (referred to as "HE beamformees"), followed by a null data backet frame (referred to as "HE sounding NDP"). Then, the AP receives simultaneous feedback frames (referred to as "HE Compressed Beamforming/CQIs") from the STAs. The HE Compressed Beamforming/CQI frames contain information about the subchannel, including the average signal-to-noise ratio and beamforming feedback matrices. *See* 802.11ax-2021 § 9.4.1.65 (HE Compressed Beamforming Report Field).

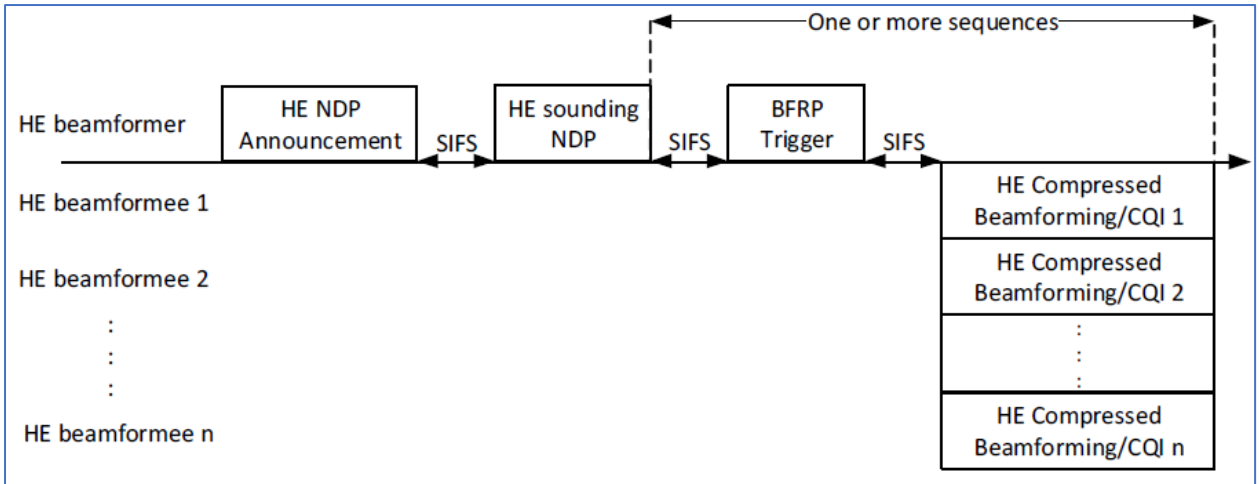


Figure 26-8—Example of HE TB sounding

54. In addition to directly infringing the ’259 method claims, Zyxel also indirectly infringes the ’259 claims. Where acts constituting direct infringement of the ’259 Patent are not performed by Zyxel, such acts constituting direct infringement of the ’259 Patent are performed by Zyxel’s customers or end-users (the direct infringers) who act at the direction and/or control of Zyxel, with Zyxel’s knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

55. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claims 1 and 18 of the ’259 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused

Products to their customers and end users of Zyxel's Accused Products with the knowledge and intent that use of those products would constitute direct infringement of the '259 Patent.

56. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard in an infringing manner based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused Products in an infringing manner. Thus, with full knowledge of the '259 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the '259 Patent by using the Accused Products to perform the infringing methods.

57. Zyxel's acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel's wrongful acts in an amount subject to proof at trial.

THIRD COUNT

(Infringement of U.S. Patent No. 9,825,738)

58. Atlas incorporates by reference the allegations set forth in Paragraphs 1-57 of this Complaint as though fully set forth herein.

59. The '738 Patent, entitled "Acknowledgement Method and Multi User Transmission Method," was duly and lawfully issued on November 21, 2017. Atlas is the owner of all right, title, and interest in the '738 Patent. The '738 Patent was filed on April 3, 2015 as Application No. 14/678,724 and claims the benefit of U.S. Provisional Application No. 61/981,427, filed on April 18, 2014, and U.S. Provisional Application No. 61/975,622, filed on April 4, 2014. *See* https://patentimages.storage.googleapis.com/b4/cb/6e/1969e989e11ae4/US9825738.pdf.

60. The ’738 Patent is directed to improvements related to triggering frames, which are used to solicit and schedule simultaneous transmissions from multiple user devices on a wireless local area network. The concept of transmitting trigger frames to solicit and synchronize multi-user uplink frames was first introduced into the wireless standard as part of 802.11ax, and Newracom was a key contributor to those concepts. The ’738 Patent covers a method of operating a station device in a wireless network that supports both multi-user downlink transmissions and multi-user uplink transmissions. Included in the downlink multi-user (“DL MU”) frame received by the non-AP station (“STA”) is uplink setup information that is to be used by the station when responding to the downlink multi-user frame. The setup information received by the STA includes information that is common to the multiple stations joining in the uplink multi-user transmission. The setup information also includes dedicated information that is specific to each responding station. The common information includes information that is a function of a total number of space time streams to be used to perform the simultaneous transmission of the uplink frames by each of the stations participating in the uplink multi-user transmission. The STA transmits an uplink frame to the AP in response to receiving the uplink setup information simultaneously with uplink frames from one or more other stations in the wireless network (referred to as an uplink multi-user or “UL MU” frame). After transmitting the uplink multi-user frame to the AP, the STA receives an acknowledgement frame from the AP acknowledging receipt of the uplink multi-user frame. The Accused STA Products are configured and designed to receive the aforementioned DL MU frame, transmit the aforementioned UL MU frames, and receive the aforementioned acknowledgment frame, and they do in fact receive and transmit those frames during normal use as intended by Zyxel.

61. The Accused AP Products transmit during normal intended operation DL MU trigger frames to a plurality of non-AP stations (“STAs”). The DL MU trigger frames include uplink setup information comprising a common information portion that is common to all of the plurality of STAs, and a dedicated user info list portion that is specific to particular STAs. The common information portion is a function of the total number of space time streams that the

STAs will use to transmit the UL MU frames. The Accused AP Products then receive HE TB PPDU uplink frames from the STAs. And the Accused AP Products then transmit a BlockAck acknowledgement frame to the STAs. Similarly, the Accused STA Products receive during normal intended operation DL MU trigger frames from a Wi-Fi 6 compliant AP. The DL MU trigger frames include uplink setup information comprising a common information portion that is common to all of the plurality of STAs, and a dedicated user info list portion that is specific to a particular STA. The common information portion is a function of the total number of space time streams that the STAs will use to transmit the UL MU frames. The Accused STA Products then transmit a HE TB PPDU uplink frame to the AP, and the Accused STA Products then receive a BlockAck acknowledgement from the AP.

62. Zyxel directly infringes the method claims of the ’738 Patent under 35 U.S.C. § 271(a) by using the Accused Products in the United States as described in paragraphs 35-37 above. Users of the Accused Products infringe at least claims 1 and 9 of the ’738 Patent when using those Accused Products to practice the 802.11ax Standard. The Zyxel Accused Products operate as either AP or STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. In the case of an AP device, this includes the ability to generate and transmit a trigger frame to multiple STAs that includes both a common information field and a dedicated information field, receive UL MU frames from those STAs, and then transmit an acknowledgement frame to multiple STAs. *See, e.g.*, 802.11ax-2021 § 4.3.15a (High Efficiency (HE) STA); § 9.3.1.22.1 (Trigger Frame format); § 10.3.2.13.3 (Acknowledgement Procedure for an UL MU Transmission); § 27.3.11.10 (HE-LTF); Figure 9-64a (Trigger frame format); Figure 9-64b (Common info field format); Figure 9-64d (User Info field format); Figure 10-14b; and Figure 10-14c. Likewise, the Accused STA Products operate as STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to receive a MU trigger frame from an AP that includes both a common information field and a dedicated information field, and the ability to transmit an MU uplink frame to the AP. *See e.g.*, *id.*

63. For example, Figure 10-14c of the Wi-Fi 6 Standard shows an AP, such as one of Zyxel's Accused AP Products, transmitting a DL trigger frame to a plurality of STAs, receiving HE TB PPDUs from each STA, and then transmitting a multi-STA BlockAck acknowledgment.

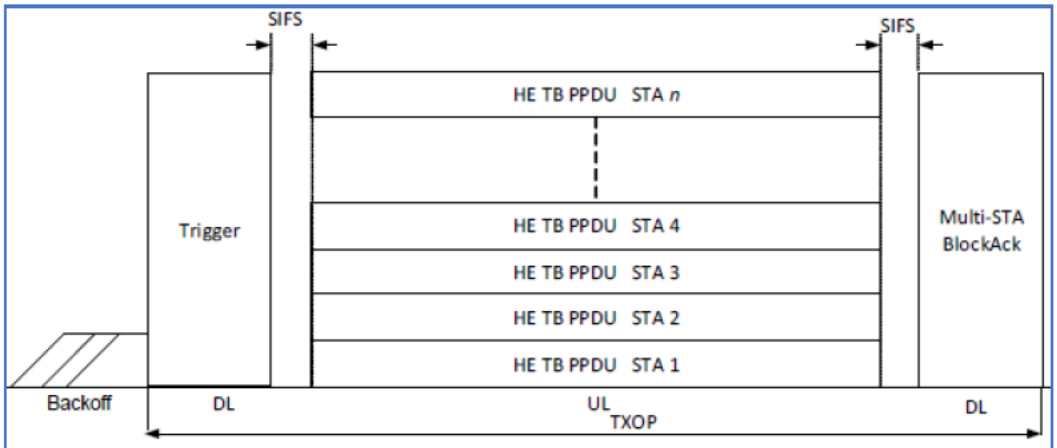


Figure 10-14c—Example of UL MU transmissions with immediate Multi-STA BlockAck frame acknowledging MPDUs

Figure 9-64a of the Wi-Fi 6 Standard shows the format of the trigger frame that the Accused AP Products transmit to a plurality of STAs. Notably, it includes uplink setup information with a common information portion (labeled "Common Info") that is common to all of the plurality of STAs that receive the trigger frame, and a dedicated information portion (labeled "User Info List") that is specific to the particular STAs that receive the trigger frame.

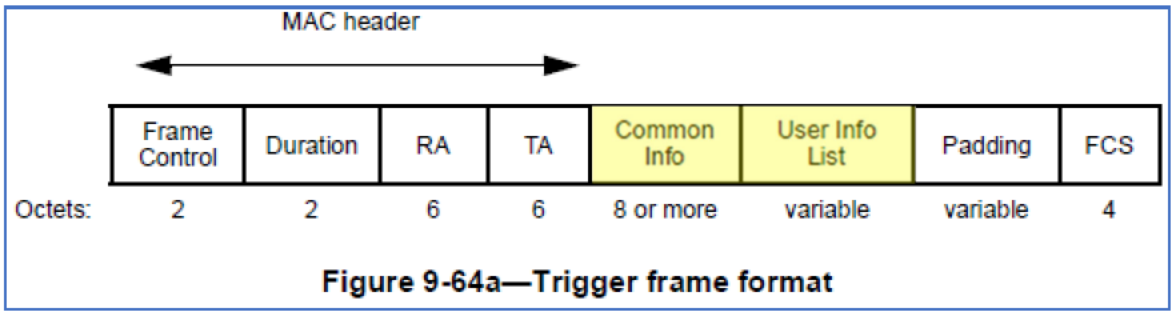


Figure 9-64a—Trigger frame format

Figure 9-64b shows the contents of the Common Info subfield, including the Number of HE-LTF Symbols and Midamble Periodicity subfield.

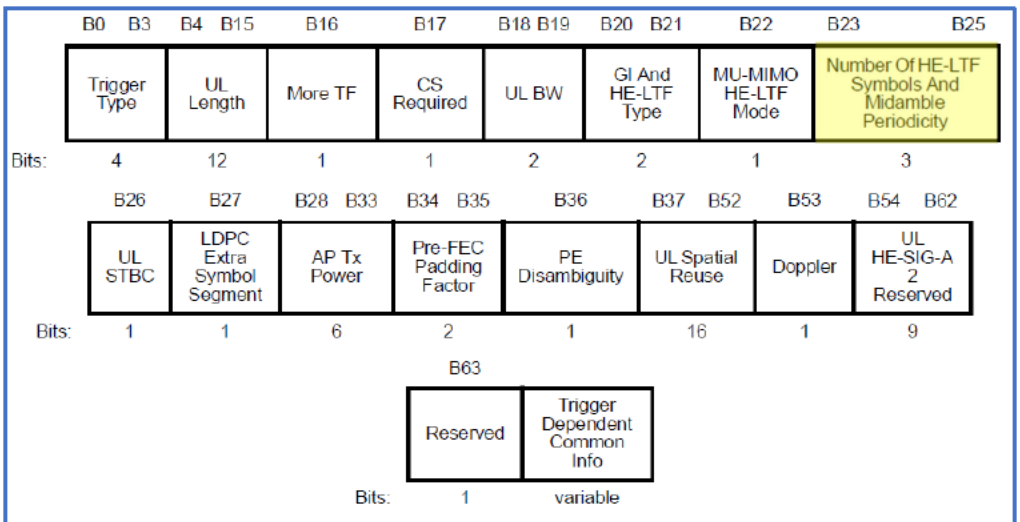


Figure 9-64b—Common Info field format

As its name suggests, that subfield indicates the number of HE-LTF symbols present in the STA's responsive HE TB PPDUs, which is a function of the total number of space-time streams. *See* 802.11ax-2021 § 27.3.11.10 (HE-LTF Field); *id.* § 27.3.4 (HE PPDU Formats); *id.* Table 21-13 (Number of VHT-LTFs Required For Different Numbers of Space-Time Streams).

64. In addition to directly infringing the '738 method claims, Zyxel also indirectly infringes the '738 claims. Where acts constituting direct infringement of the '738 Patent are not performed by Zyxel, such acts constituting direct infringement of the '738 Patent are performed by Zyxel's customers or end-users (the direct infringers) who act at the direction and/or control of Zyxel, with Zyxel's knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end-users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

65. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claims 1 and 9 of the ’738 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers and end users of Zyxel’s Accused Products with the knowledge and intent that use of those products would constitute direct infringement of the ’738 Patent.

66. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused Products in an infringing manner. Thus, with full knowledge of the ’738 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the ’738 Patent by using the Accused Products to perform the infringing methods.

67. Zyxel’s acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel’s wrongful acts in an amount subject to proof at trial.

FOURTH COUNT

(Infringement of U.S. Patent No. 9,848,442)

68. Atlas incorporates by reference the allegations set forth in Paragraphs 1-46 of this Complaint as though fully set forth herein.

69. The ’442 Patent, entitled “Method for Transmitting and Receiving Frame in Wireless Local Area Network,” was duly and lawfully issued on December 19, 2017. Atlas is the owner of all right, title, and interest in the ’442 Patent. The ’442 Patent was filed on November 10, 2015 as Application No. 14/937,284 and claims the benefit of U.S. Provisional Application No.

62/077,771, filed on November 10, 2014. *See* https://patentimages.storage.googleapis.com/7e/52/0f/569a3a08af772e/US9848442.pdf.

70. The ’442 Patent is directed to setting a physical layer (“PHY”) level network allocation vector (“NAV”) when receiving a high-efficiency (“HE”) physical layer protocol data unit (“PPDU”) and setting a medium access control (“MAC”) level NAV when receiving a legacy PPDU. Certain claims are directed to a transmitting STA device, in which the STA receives a PHY PPDU, and determines whether a received PPDU originated from a basic service set (“BSS”) to which the device belongs or originated from a BSS to which the device does not belong. When an Accused STA Device receives an HE PPDU, the Accused STA Device will set a PHY-level virtual carrier sensing using duration information included in the PHY header of the PPDU. When an Accused STA Device receives a legacy PPDU, the Accused STA Device will set a MAC-level virtual carrier sensing using duration information included in the MAC header of the PPDU. Depending on the value of the virtual carrier sensing, the device will then attempt to obtain a transmission opportunity.

71. The Accused STA Products have a processor and a memory storing instructions to receive the aforementioned PHY PPDU, determine the BSS, and adjust the aforementioned settings, and they do in fact receive those frames, make those determinations, and adjust those settings during normal use as intended by Zyxel.

72. Zyxel directly infringes the ’442 Patent under 35 U.S.C. § 271(a) by making, using, selling, and/or offering to sell in the United States, and/or importing into the United States products that directly infringe the ’442 Patent, including the above identified Accused Products. The Accused STA Products infringe at least claim 8 of the ’442 Patent by practicing the 802.11ax Standard, as indicated in Zyxel’s marketing material for the Accused Products. The Accused STA Products operate as Station devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the claimed ability to receive PHY PPDUs, determine the BSS, and adjust the virtual carrier sensing settings. *See, e.g.*, 802.11ax-2021 § 10.3.2.4 (Setting and resetting the NAV); § 10.3.2.1 (CS mechanism); § 10.28.3

(Duration/ID field processing); § 26.2.2 (Intra-BSS and inter-BSS PPDU classification); § 26.2.4 (Updating two NAVs); § 26.10.2.2 (General operation with non-SRG OBSS PD level); § 26.11.5 (TXOP_DURATION); § 27.2.1 (HE PHY service interface: Introduction); § 27.3.4 (HE PPDU formats); § 27.3.22 (HE receive procedure); § 27.3.11.7.1 (HE-SIG-A field); Table 9-9; Table 27-1; Table 27-18; Figure 19-1; Figure 21-4.

73. The Accused STA Devices determine whether a received PPDU is inter-BSS or intra-BSS based on criteria specified in the 802.11ax Standard. The 802.11ax Standard provides instructions for a STA to determine whether a PPDU is inter-BSS or intra-BSS. *See* 802.11ax-2021 § 26.2.4 (Intra-BSS and inter-BSS PPDU classification).

74. According to the 802.11ax Standard, when an Accused STA Device receives an HE PPDU that is inter-BSS, the Accused STA Device will set a PHY-level virtual carrier sensing using duration information included in the PHY header of the PPDU. The Accused STA Device uses the TXOP_DURATION parameter from the TXVECTOR as the Duration value. *See* 802.11ax-2021 § 26.2.4 (Updating two NAVs). The Duration value is used to set the PHY-level NAV. *See* 802.11ax-2021 § 27.3.11.7 (HE-SIG-A field).

TXOP_DURATION	FORMAT is HE_SU, HE_MU, HE_ER_SU or HE_TB	Indicates the TXOP duration. Enumerated type or integer: UNSPECIFIED indicates no NAV value specified. 0 – 8448 indicates a value in units of 1 µs that is used to update the NAV for this TXOP (see 26.2.4 (Updating two NAVs)). TXVECTOR parameter TXOP_DURATION is converted to a value in the TXOP subfield of HE-SIG-A (see Table 27-18 (HE-SIG-A field of an HE SU PPDU and HE ER SU PPDU), Table 27-20 (HE-SIG-A field of an HE MU PPDU) and Table 27-21 (HE-SIG-A field of an HE TB PPDU)) as follows: TXOP_DURATION = UNSPECIFIED: B0-B6 = 127 TXOP_DURATION < 512: B0 = 0, B1-B6 = ⌊TXOP_DURATION / 8⌋ Otherwise: B0 = 1, B1-B6 = ⌊TXOP_DURATION – 512 / 8⌋ RXVECTOR parameter TXOP_DURATION is determined from the value in the TXOP subfield of HE-SIG-A (see Table 27-18 (HE-SIG-A field of an HE SU PPDU and HE ER SU PPDU), Table 27-20 (HE-SIG-A field of an HE MU PPDU) and Table 27-21 (HE-SIG-A field of an HE TB PPDU)) as follows: B0-B6 = 127: TXOP_DURATION = UNSPECIFIED B0 = 0: TXOP_DURATION = 8 × B1-B6 Otherwise: TXOP_DURATION = 512 + 128 × B1-B6 See 26.11.5 (TXOP_DURATION) for more details.	Y	Y
	Otherwise	Not present.	N	N

75. According to the 802.11ax Standard, when an Accused STA Device receives a legacy PPDU that is inter-BSS, the Accused STA Device will set a MAC-level virtual carrier sensing using duration information included in the MAC header of the PPDU. The MAC header of a legacy PPDU contains a "Duration/ID" field." *See* 802.11ax-2021 § 9.2.3 (General Frame Format). The Accused STA Devices used the Duration value to set the MAC-level NAV. *See* 802.11ax-2021 § 10.3.2.4 (Setting and resetting the NAV); 802.11ax-2021 § 26.2.4 (Updating two NAVs).

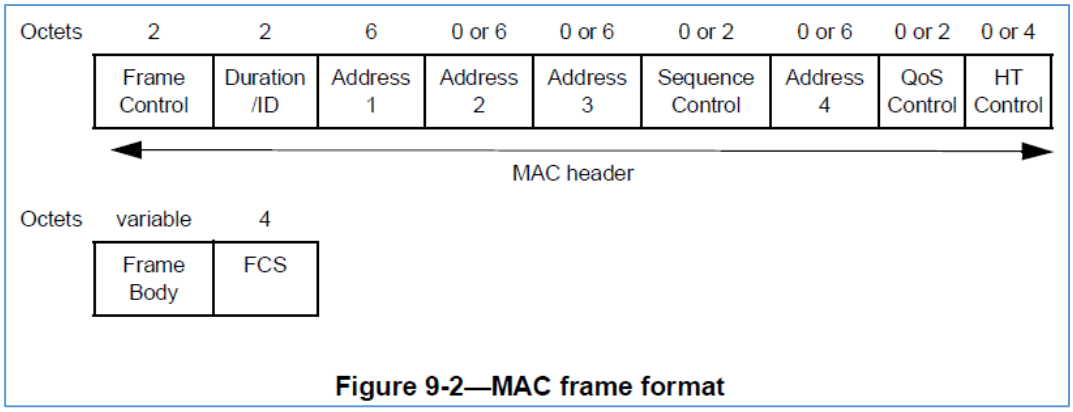


Figure 9-2—MAC frame format

76. In addition to directly infringing the '442 apparatus claims by making, selling and using infringing products in the United States, Zyxel also indirectly infringes the '442 Patent claims. Where acts constituting direct infringement of the '442 Patent may not be performed by Zyxel, such acts constituting direct infringement of the '442 Patent are performed by Zyxel's customers or end-users who act at the direction and/or control of Zyxel, with Zyxel's knowledge.

77. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claim 8 of the '442 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers and end users of Zyxel's Accused Products with the knowledge and intent that their further making, using, selling, offering to sell, or importing those products would constitute direct infringement of the '442 Patent.

78. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard in an infringing manner based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to make, use, sell, offer to sell, and/or import the Accused Products in an infringing manner. Thus, with full knowledge of the '442 Patent as

described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the ’442 Patent by making, using, selling, offering to sell, and/or importing the Accused Products.

79. Zyxel’s acts of infringement have cause damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel’s wrongful acts in an amount subject to proof at trial.

FIFTH COUNT

(Infringement of U.S. Patent No. 9,912,513)

80. Atlas incorporates by reference the allegations set forth in Paragraphs 1-79 of this Complaint as though fully set forth herein.

81. The ’513 Patent, entitled “System and Method for Synchronization for OFDMA Transmission,” was duly and lawfully issued on March 6, 2018. Atlas is the owner of all right, title, and interest in the ’513 Patent. The ’513 Patent was filed on July 6, 2016 as Application No. 15/203,717 as a continuation of Application No. 14/868,303, filed on September 28, 2015 (which resulted in U.S. Patent No. 9,413,581), and further claims the benefit of U.S. Provisional Application No. 62/061,503, filed on October 8, 2014. *See* https://patentimages.storage.googleapis.com/13/74/f6/7f6ce09c401f49/US9912513.pdf.

82. The ’513 Patent generally relates to 802.11ax downlink (“DL”) trigger frames sent by access points and received by stations that indicate the guard interval duration of the expected uplink (“UL”) responsive frames sent by the stations. In MU OFDMA, stations may simultaneously transmit uplink frames where each field within an uplink frame includes: (1) a guard interval (sometimes referred to as a “cyclic prefix”); and then (2) one or more symbols. But if the guard interval durations are not uniform amongst all the stations, the symbols will not be synchronized, and the access point may have greater difficulty correctly decoding the frames received from the stations. To ensure all the stations use the same guard interval duration, the access point may transmit a trigger frame with information for a guard interval (“GI”) duration to be used for at least some symbols of a subsequent UL frame.

83. The Accused AP Products create and transmit during normal intended operation a trigger frame to a set of STAs that will participate in a subsequent uplink multi-user transmission. That trigger frame has a Common Info field with a GI and HE LTF Type subfield that indicates the common guard interval for the STAs' subsequent uplink multi-user transmission. That trigger frame also has a User Info List field with a RU Allocation subfield that allocates resources for and solicits the STAs' subsequent uplink multi-user transmission. The STAs will then each generate and transmit during normal and intended use an uplink transmission (called a HE TB PPDU) using the guard interval and resources from the trigger frame. The Accused AP Products receive and process those HE TB PPDU uplink transmissions. Similarly, the Accused STA Products receive a trigger frame during normal and intended operation. That trigger frame has a Common Info field with a GI and HE LTF Type subfield that indicates the common guard interval for the STA's subsequent uplink multi-user transmission. That trigger frame also has a User Info List field with a RU Allocation subfield that allocates resources for and solicits the STA's subsequent uplink multi-user transmission. The STA will then generate and transmit an uplink transmission (called a HE TB PPDU) using the guard interval and resources from the trigger frame.

84. Zyxel directly infringes the apparatus claims of the '513 Patent under 35 U.S.C. § 271(a) by making, using, selling, and/or offering to sell in the United States, and/or importing into the United States products that directly infringe the '531 Patent, including the above identified Accused Products. For example, the Accused STA Products infringe at least claim 1 of the '513 Patent by practicing the 802.11ax Standard, as indicated in Zyxel's marketing materials for the Accused Products. The Accused STA Products operate as STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to receive trigger frames that allocate resources and indicate guard intervals for subsequent uplink multi-user transmissions. *See*, *e.g.*, 802.11ax-2021 § 9.3.1.22 (Trigger frame format); Figure 9-64a (Trigger frame format); Figure 9-64b (Common info field format); 9-64d (User info field format).

85. Zyxel also directly infringes the method claims of the ’513 Patent under 35 U.S.C. § 271(a) by using the Accused Products in the United States as described in paragraphs 35-37 above. Users of the Accused AP Products infringe at least claim 15 of the ’513 Patent when using those Accused Products to practice the 802.11ax Standard. The Zyxel Accused AP Products operate as AP devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to generate and send trigger frames that allocate resources and indicate guard intervals for subsequent uplink multi-user transmissions from STAs. *See*, *e.g.*, 802.11ax-2021 § 9.3.1.22 (Trigger frame format); Figure 9-64a (Trigger frame format); Figure 9-64b (Common info field format); 9-64d (User info field format).

86. For example, Figures 9-64a, 9-64b and 9-64d (amalgamated below) of the Wi-Fi 6 Standard show certain fields and subfields of a trigger frame that is generated and transmitted by the Accused AP Products.

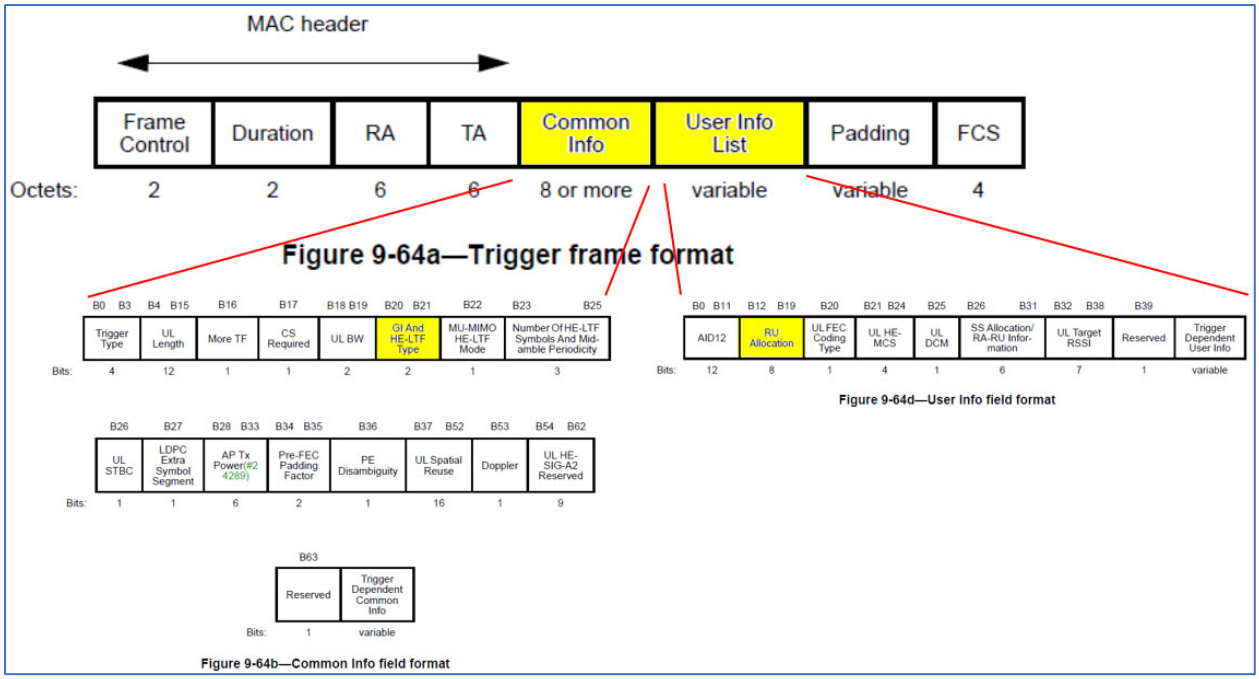


Table 9-31d of the Wi-Fi 6 Standard shows that the GI and HE-LTF subfield of the trigger frame sets the guard interval—either 1.6 µs or 3.2 µs—used for the STAs’ responsive HE TB PPDUs.

Table 9-31d—GI And HE-LTF Type subfield encoding

GI And HE-LTF Type subfield value	Description
0	1x HE-LTF + 1.6 µs GI
1	2x HE-LTF + 1.6 µs GI
2	4x HE-LTF + 3.2 µs GI
3	Reserved

Table 9-31h of the Wi-Fi 6 Standard further shows that the RU Allocation subfield of the trigger frame allocates resources for a particular STA's responsive HE TB PPDU.

Table 9-31h—B7–B1 of the RU Allocation subfield

B7-B1 of the RU Allocation subfield	UL BW subfield	RU size	RU Index
0–8	20 MHz, 40 MHz, 80 MHz, 80+80 MHz or 160 MHz	26	RU1 to RU9, respectively
9–17	40 MHz, 80 MHz, 80+80 MHz or 160 MHz		RU10 to RU18, respectively
18–36	80 MHz, 80+80 MHz or 160 MHz		RU19 to RU37, respectively
37–40	20 MHz, 40 MHz, 80 MHz, 80+80 MHz or 160 MHz	52	RU1 to RU4, respectively
41–44	40 MHz, 80 MHz, 80+80 MHz or 160 MHz		RU5 to RU8, respectively
45–52	80 MHz, 80+80 MHz or 160 MHz		RU9 to RU16, respectively

87. In addition to directly infringing the '513 method claims, Zyxel also indirectly infringes the '513 claims. Where acts constituting direct infringement of the '513 Patent are not be performed by Zyxel, such acts constituting direct infringement of the '513 Patent are performed by Zyxel's customers or end-users (the direct infringers) who act at the direction and/or control of Zyxel, with Zyxel's knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused

Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

88. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claim 15 of the ’513 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers with the knowledge and intent that use of those products would constitute direct infringement of the ’513 Patent.

89. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused products in an infringing manner. Thus, with full knowledge of the ’513 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the ’513 Patent by using the Accused Products to perform the infringing methods.

90. Zyxel’s acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel’s wrongful acts in an amount subject to proof at trial.

SIXTH COUNT

(Infringement of U.S. Patent No. 9,917,679)

91. Atlas incorporates by reference the allegations set forth in Paragraphs 1-90 of this Complaint as though fully set forth herein.

92. The ’679 Patent, entitled “Method and Apparatus for Transmitting Response Frame Based on Type in a High Efficiency Wireless LAN,” was duly and lawfully issued on March 13, 2018. Atlas is the owner of all right, title, and interest in the ’679 Patent. The ’679 Patent was filed on November 3, 2015 as Application No. 14/931,753 and claims the benefit of U.S. Provisional Application No. 62/080,026, filed on November 14, 2014, and U.S. Provisional Application No. 62/074,514, filed on November 3, 2014. *See* https://patentimages.storage.googleapis.com/17/b5/81/214a1f0874d6c4/US9917679.pdf.

93. The ’679 Patent generally relates to 802.11ax responsive UL transmission. When used according to their normal and intended operation, the Accused AP Products transmit, and the Accused STA Products receive, a downlink (DL) frame that identifies the type of UL frame for the STA to provide as an acknowledgement. The types may be either a single-user (SU) type or a multiple-user (MU) type frame. Similarly, when used according to their normal and intended operation, the Accused STA Products transmit, and the Accused AP Products receive, an uplink frame of the type previously specified in the DL frame. If the UL frame corresponds to a MU type, the Accused STA Product simultaneously transmits the UL frames with at least one other station.

94. Zyxel directly infringes the method claims of the ’679 Patent under 35 U.S.C. § 271(a) by using the Accused Products in the United States as described in paragraphs 35-37 above. Users of the Accused Products infringe at least claims 1 and 6 of the ’679 Patent when using those Accused Products to practice the 802.11ax Standard. The Zyxel Accused AP Products operate as AP devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to generate and send downlink MAC frames that have a QoS Control field that contains an Ack Policy Indicator. The Ack Policy Indicator within the QoS

Control Field indicates whether the STA who receives a HE MU PPDU will transmit its acknowledgment as an SU PPDU in single-user format or as a HE TB PPDU in multiple-user format. *See, e.g.*, 802.11ax-2021 § 9.2.4.5.1 (QoS Control field structure); § 9.2.4.5.4 (Ack Policy Indicator Subfield); §10.3.2.11 (Acknowledgement Procedure); § 10.3.2.13 (MU Acknowledgement Procedure); §26.4.4 (Acknowledgement Selection Rules); and Figures 9-2, 9-3, 10-13 and 10-14a. Similarly, the Accused STA Products operate as STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to receive downlink MAC frames that have a QoS Control field that contains an Ack Policy Indicator. The Ack Policy Indicator within the QoS Control Field indicates whether the STA device who receives a HE MU PPDU will transmit its acknowledgment as an SU PPDU in single-user format or as a HE TB PPDU in multiple-user format. *See, e.g.*, *id.*

95. For example, Figure 9-2 of the Wi-Fi 6 Standard shows the format of a downlink MAC frame sent by an Accused AP Product. Notably, it contains a QoS Control Field, and bits 5-6 of that QoS Control Field are the Ack Policy Indicator.

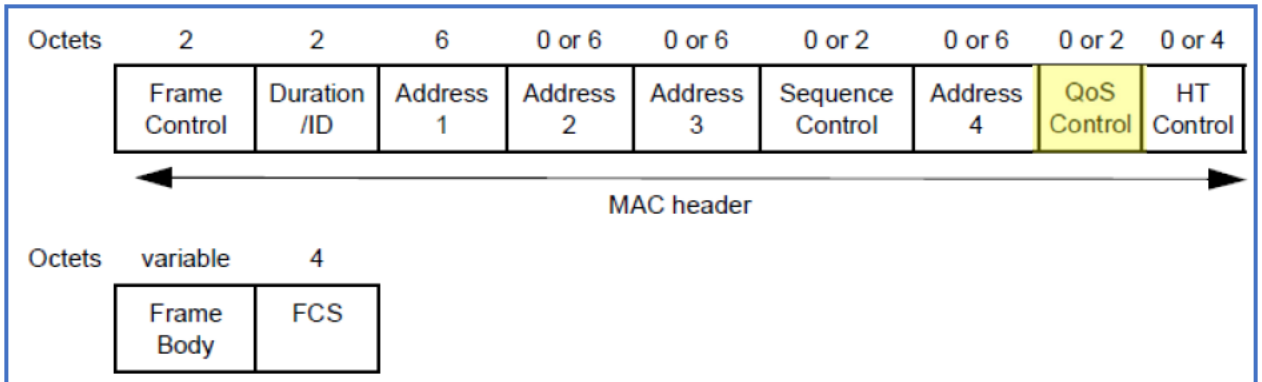


Figure 9-2—MAC frame format

The Ack Policy Indicator within the QoS Control Field indicates whether the STA will transmit its acknowledgment as an SU PPDU in single-user format or as a HE TB PPDU in multiple-user format, as shown by Table 9-13 of the Wi-Fi 6 Standard. For example, if the ACK Policy Indicator is "00" indicating Normal Ack, then the STA will acknowledge reception using a HE SU PPDU in single-user format. But if the ACK Policy Indicator of a MU PPDU is "01"

indicating HETP Ack, then the STA will acknowledge reception using a HE TB PPDU in multi-user format.

Table 9-13—Ack policy

Ack policy	Ack Policy Indicator subfield		Other conditions	Meaning
	Bit 0	Bit 1		
Normal Ack	0	0	MPDU is a non-A-MPDU frame	Where the frame contains a fragment and both the originator and the addressed recipient support fragment BA : The addressed recipient returns an NDP BlockAck or BAT frame after a SIFS, according to the procedures defined in 10.3.2.12 and 10.47.2. Otherwise: The addressed recipient returns an Ack, STACK, or QoS +CF-Ack frame after a short interframe space (SIFS) period, according to the procedures defined in 10.3.2.11, 10.47.2, and 10.23.3.5. A non-DMG STA uses this ack policy for individually addressed QoS Null frames.
Implicit BAR	0	0	MPDU is not a non-A-MPDU frame NOTE—This MPDU is sent under a block ack agreement.	The addressed recipient returns a BlockAck, TACK or BAT frame, either individually or as part of an A-MPDU starting a SIFS after the PPDU carrying the frame, according to the procedures defined in 10.3.2.11, 10.25.6.5, 10.29.3, 10.29.4, 10.47.2, and 10.34.3.
No Ack	1	0	None	The addressed recipient takes no action upon receipt of the frame. More details are provided in 10.26. This ack policy is used in all individually addressed frames in which the sender does not require immediate acknowledgment. It is also used in all group addressed frames that use the QoS frame format except QoS Data frames with a TID for which a block ack agreement exists. It is not used for QoS Data frames with a TID for which a block ack agreement exists.

No Explicit Acknowledgment	0	1	Bit 6 of the Frame Control field (see 9.2.4.1.3) is equal to 1 and the frame is not carried in an HE MU PPDU, HE SU PPDU, or HE ER SU PPDU that contains a frame that solicits a response in an HE TB PPDU	There might be a response frame to the frame that is received, but it is neither the Ack frame nor any Data frame of subtype +CF-Ack. This ack policy is used for QoS CF-Poll and QoS CF-Ack +CF-Poll Data frames. NOTE—Bit 6 of the Frame Control field (see 9.2.4.1.3) indicates the absence of a Frame Body field in a QoS Data frame. ~~When~~ If equal to 1, the QoS Data frame contains no Frame Body field, and any response is generated in response to a QoS CF-Poll or QoS CF-Ack +CF-Poll frame, but does not signify an acknowledgment of data.
PSMP Ack	0	1	Bit 6 of the Frame Control field (see 9.2.4.1.3) is equal to 0 and the frame is not carried in an HE MU PPDU, HE SU PPDU, or HE ER SU PPDU that contains a frame that solicits a response in an HE TB PPDU	The acknowledgment for a frame indicating PSMP Ack when it appears in a PSMP downlink transmission time (PSMP-DTT) is to be received in a later PSMP uplink transmission time (PSMP-UTT). The acknowledgment for a frame indicating PSMP Ack when it appears in a PSMP-UTT is to be received in a later PSMP-DTT. See 10.30.2.7.
HETP Ack	0	1	The frame is carried in an HE MU PPDU, HE SU PPDU, or HE ER SU PPDU that contains a frame that solicits a response in an HE TB PPDU	The addressed recipient returns an Ack, Compressed BlockAck, or Multi-STA BlockAck frame carried in an HE TB PPDU a SIFS after the PPDU, subject to reception of a triggering frame in the PPDU, as defined in 10.3.2.13.2 and 26.5.2.
Block Ack	1	1	None	The addressed recipient takes no action upon the receipt of the frame except for recording the state. The recipient can expect a BlockAckReq frame or implicit block ack request in the future to which it responds using the procedure described in 10.25.

96. In addition to directly infringing the '679 method claims, Zyxel also indirectly infringes the '679 claims. Where acts constituting direct infringement of the '679 Patent are not performed by Zyxel, such acts constituting direct infringement of the '679 Patent are performed by Zyxel's customers or end-users (the direct infringers) who act at the direction and/or control of Zyxel, with Zyxel's knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity

with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

97. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claims 1 and 6 of the '679 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers with the knowledge and intent that use of those products would constitute direct infringement of the '679 Patent.

98. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused Products in an infringing manner. Thus, with full knowledge of the '679 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the '679 Patent by using the Accused Products to perform the infringing methods.

99. Zyxel's acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel's wrongful acts in an amount subject to proof at trial.

SEVENTH COUNT

(Infringement of U.S. Patent No. 10,020,919)

100. Atlas incorporates by reference the allegations set forth in Paragraphs 1-99 of this Complaint as though fully set forth herein.

101. The ’919 Patent, entitled “Protection Methods for Wireless Transmissions,” was duly and lawfully issued on July 10, 2018. Atlas is the owner of all right, title, and interest in the ’919 Patent. The ’919 Patent was filed on April 25, 2017 as Application No. 15/497,094 as a continuation of Application No. 15/291,947, filed on October 12, 2016 (which resulted in U.S. Patent No. 9,667,394), and further claims the benefit of U.S. Provisional Application No. 62/333,192, filed on May 7, 2016, U.S. Provisional Application No. 62/333,077, filed on May 6, 2016, U.S. Provisional Application No. 62/331,380, filed on May 3, 2016, and U.S. Provisional Application No. 62/240,419, filed on October 12, 2015. *See* https://patentimages.storage.googleapis.com/c3/70/58/d1b5e3ee57d660/US10020919.pdf.

102. The ’919 Patent generally relates to an access point soliciting Channel State Information (“CSI”) from one or more stations using a Null Data Packet Announcement (indicating which stations should send CSI) followed by a Null Data Packet, after which either a single station responds, or multiple stations wait for an indication they should respond (in response to a polling or trigger frame). The ’919 Patent discloses a CSI feedback procedure, also known as sounding procedure, that consists of a transmission, by the beamformer (such as an access point), of a non-data packet announcement (NDPA) transmission followed by non-data packet (NDP). In response to the NDPA transmission and the NDP, a beamformee (such as a station) transmits CSI feedback to the beamformer. The ’919 Patent teaches multiple procedures for providing CS feedback, including: (1) a single user provides CSI feedback using a UL Single-User (SU) MIMO transmission, or (2) a plurality of users provide CSI feedback simultaneously using an UL MU transmission. The procedure that is used is indicated by a number of per-station information fields in the NDPA frame. The NDPA frame contains parameters for CSI feedback as well as list of STAs that are directed to participate in the CSI feedback process. Thus, the ’919 Patent teaches a technique which supports UL MU transmission while avoiding the overhead of a trigger frame when only soliciting CSI information from a single station. The Accused AP Products and the Accused STA Products are

configured and designed to implement the above sounding procedure, and they do in fact implement that sounding procedure during normal use as intended by Zyxel.

103. Zyxel directly infringes the method claims of the '919 Patent under 35 U.S.C. § 271(a) by using the Accused Products in the United States as described in paragraphs 35-37 above. Users of the Accused Products infringe at least claims 1 and 11 of the '919 Patent when using those Accused Products to practice the 802.11ax Standard. This includes performing a sounding procedure where the Accused AP Products generate and transmit null data packet announcements with one or more station information fields, followed by null data packets. When there is only a single station information field in the null data packet announcement, that receiving station is required to transmit a CSI feedback report. *See e.g.*, 802.11ax-2021 § 26.7 (HE Sounding protocol); § 9.3.1.19 (VHT/HE NDP Announcement Frame Format); Figures 9-61a, 26-7, 26-8. This also includes performing a sounding procedure where the Accused STA Products receive null data packet announcements with one or more station information fields, followed by null data packets. When there is only a single station information field in the null data packet announcement, the Accused STA Products are required to transmit a CSI feedback report. *See e.g.*, *id.*

104. For example, Figure 26-7 of the Wi-Fi 6 standard shows an AP (referred to as a "HE beamformer"), such as one of Zyxel's Accused AP products, transmitting a null data packet announcement frame to a single STA device (referred to as a "HE beamformee").

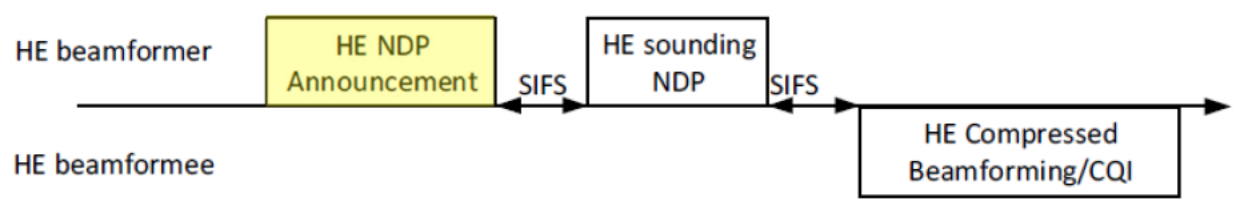


Figure 26-7—Example of HE non-TB sounding

Figure 9-61 shows the format of a null data packet announcement frame.

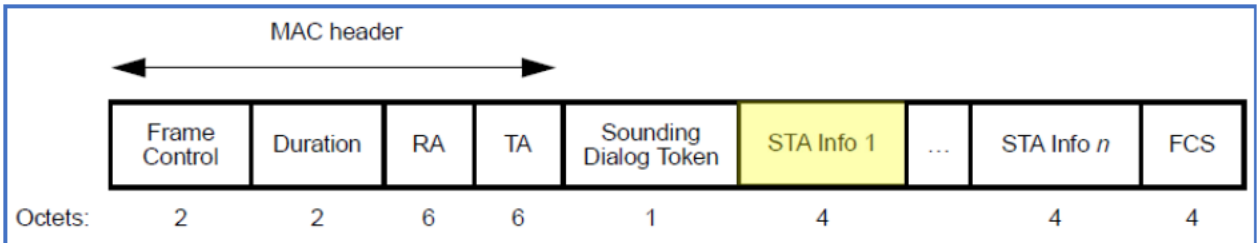


Figure 9-61a—HE NDP Announcement frame format

If the null data packet announcement frame was only intended for a single station as in Figure 26-7, there will only be a single station information field ("STA Info 1") in the NDPA transmitted by the Accused AP Product. Thus, the number of station information fields is the cardinality of the set of STA Info fields in the HE NDPA. Thereafter, the Accused AP Product transmits a null data packet (referred to in Figure 26-7 above as a "HE sounding NDP") to the station. Then, the station will transmit a channel state information feedback report (referred to in Figure 26-7 above as a "HE Compressed Beamforming/CQI"), and the Accused AP Product will receive it.

105. In addition to directly infringing the '919 method claims, Zyxel also indirectly infringes the '919 claims. Where acts constituting direct infringement of the '919 Patent are not performed by Zyxel, such acts constituting direct infringement of the '919 Patent are performed by Zyxel's customers or end-users (the direct infringers) who act at the direction and/or control of Zyxel, with Zyxel's knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the

Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

106. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claims 1 and 11 of the ’919 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers and end users with the knowledge and intent that use of those products would constitute direct infringement of the ’919 Patent.

107. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused products in an infringing manner. Thus, with full knowledge of the ’919 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the ’919 Patent by using the Accused Products to perform the infringing methods.

108. Zyxel’s acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel’s wrongful acts in an amount subject to proof at trial.

EIGHTH COUNT

(Infringement of U.S. Patent No. 10,153,886)

109. Atlas incorporates by reference the allegations set forth in Paragraphs 1-108 of this Complaint as though fully set forth herein.

110. The ’886 Patent, entitled “Apparatus and Method for Downlink and Uplink Multi-User Transmissions,” was duly and lawfully issued on December 11, 2018. Atlas is the owner of

all right, title, and interest in the ’886 Patent. The ’886 Patent was filed on November 15, 2016 as Application No. 15/352,435 as a continuation of Application No. 15/078,920, filed on March 23, 2016 (which resulted in U.S. Patent No. 9,531,520), and further claims the benefit of U.S. Provisional Application No. 62/140,349, filed on March 30, 2015, and U.S. Provisional Application No. 62/137,138, filed on March 23, 2015. *See* https://patentimages.storage.googleapis.com/a4/f0/b1/13636bb6f9836a/US10153886.pdf.

111. The ’886 Patent is directed to important improvements related to triggering mechanisms for soliciting and scheduling multi-user uplink transmissions that were first implemented in 802.11ax. As noted above, Newracom was a key contributor to the concepts and implementation details of triggering frames. The ’886 Patent recites both method and apparatus claims directed to a receiving station device, in which the station receives a downlink frame from an access point and identifies scheduling information in the MAC header of the downlink frame that solicits an uplink response frame from the station. In response to receipt of the scheduling information in the MAC header of the downlink frame, the receiving device generates an uplink response that includes a single high efficiency long training (“HE-LTF”) field that consists of a single OFDM symbol and transmits the uplink response frame using the scheduling information provided in the downlink frame.

112. The Accused STA Products have memories and one or more processors coupled to the memories to process a downlink (“DL”) frame containing scheduling information in a Media Access Control (“MAC”) header soliciting an uplink response. In response, the Accused STA Products generate and transmit an uplink (“UL”) response frame which includes a high efficiency short training field (“HE-STF”) followed immediately by a single High Efficiency Long Training Field (“HE-LTF”) consisting of a single orthogonal frequency-division multiplexing (“OFDM”) symbol. The OFDM symbol of the HE-LTF is immediately followed by one or more data symbols.

113. Zyxel directly infringes the apparatus claims of the ’886 Patent under 35 U.S.C. § 271(a) by making, using, selling, and/or offering to sell in the United States, and/or importing

into the United States products that directly infringe the ’886 Patent, including the above identified Accused Products. The Accused STA Products infringe at least claim 9 of the ’886 Patent by practicing the 802.11ax Standard, as indicated in Zyxel’s marketing materials for the Accused Products. The Zyxel Accused STA Products operate as Station devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to generate and transmit uplink frames with the claimed HE-STF and HE-LTF fields. *See, e.g.*, 802.11ax-2021 § 27.1 (HE PHY); § 27.2 (HE PHY Service Interface); § 27.3.4 (HE PPDU Formats); § 27.3.5 (Transmitter Block Diagram); § 27.3.11.10 (HE-LTF field); § 27.3.22 (HE Receive Procedure); § 9.2.3 (General Frame Format); § 10.3.2.13.2 (Acknowledgment procedure for DL MU PPDU in MU format); Fig. 9-2; Fig. 9-19a; Fig. 9-19b; Fig. 9-22b; Fig. 10-14a; Fig. 27-11; Table 9-22a.

114. For example, the following annotated figures from the Wi-Fi 6 Standard show the DL frame with scheduling information in the MAC header that a STA, such as one of Zyxel’s Accused STA Products, receiving during normal and intended operation. Figure 9-2 shows the MAC frame header, which includes the HT Control field. As shown in Figure 9-2, the MAC frame contains an HT Control field, the possible contents of which are shown in Table 9-13b. If bits B0 and B1 of the HT Control field are “11,” that indicates the HT Control field has been extended to accommodate the 802.11ax standard using the HE variant, and the A-Control subfield will be present. The A-Control subfield has a Control List subfield shown in Figure 9-19a, which in turn has Control ID and Control Information subfields shown in Figure 9-19b. The Control ID subfield may have a value of “0,” which (as shown in Table 9-22a) indicates that the Control Information subfield provides Triggered Response Scheduling. And when Triggered Response Scheduling is used, the Control Information subfield has UL Data Symbols and RU Allocation subfields (as shown in Figure 9-22a), which respectively indicate the number of OFDM data symbols and resource unit allocation for the uplink response.

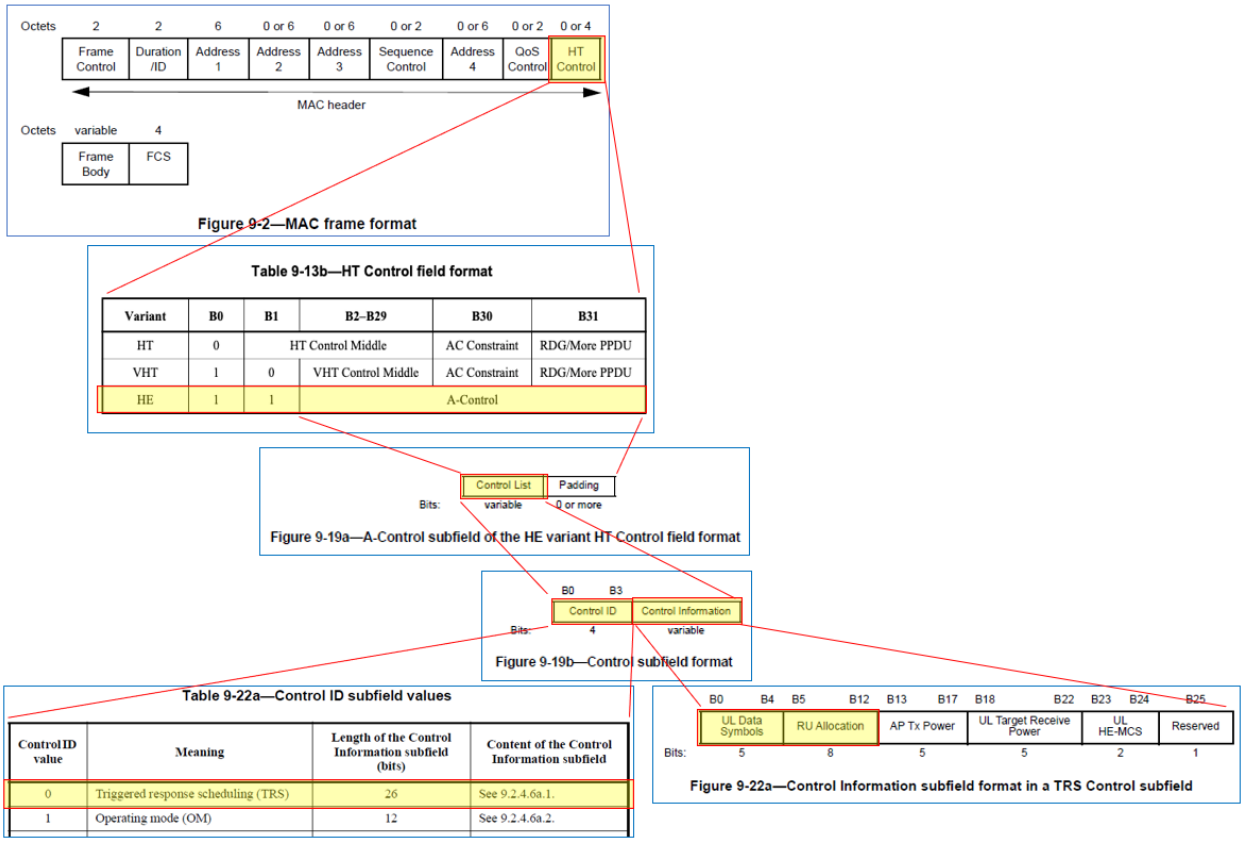


Figure 27-11 illustrates the uplink response frame generated by the Accused STA Product in response to the DL frame. As shown in Figure 27-11, the UL response frame includes an HE-STF followed by an HE-LTF. As shown in Table 27-1, the NUM_HE_LTF valued determines the number of OFDM symbols in the HE-LTF field. TXVECTOR for a frame transmitting the TRS Control field in a MAC header is set to 1, thereby setting the number of OFDM symbols in the HE-LTF field to 1.

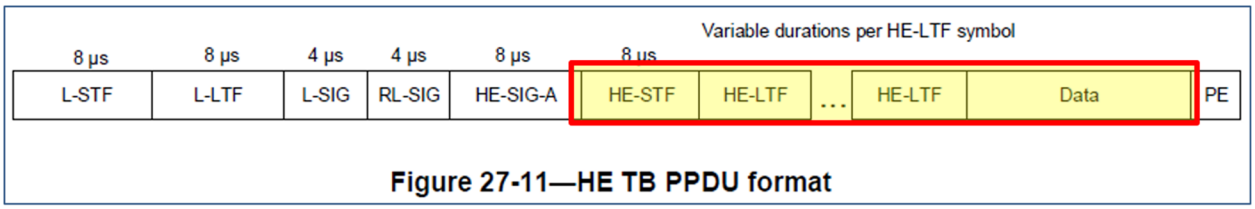


Figure 27-11—HE TB PPDU format

Table 27-1—TXVECTOR and RXVECTOR parameters *(continued)*				
Parameter	**Condition**	**Value**	**TXVECTOR**	**RXVECTOR**
NUM_HE_LTF	FORMAT is HE_MU or HE_TB	Indicates the number of OFDM symbols in the HE-LTF field. See 26.5.2.3 and 27.3.11.7.2.	Y	N
	Otherwise	Not present	N	N

115. In addition to directly infringing the '886 apparatus claims, Zyxel also indirectly infringes the '886 claims. Where acts constituting direct infringement are not performed by Zyxel, such acts constituting direct infringement of the '886 Patent are performed by Zyxel's customers or end-users who act at the direction and/or control of Zyxel, with Zyxel's knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless networking features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

116. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claim 9 of the '886 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers and end users of Zyxel's Accused Products with the

knowledge and intent that their further making, using, selling, offering to sell, or importing of those products would constitute direct infringement of the ’886 Patent.

117. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard in an infringing manner based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to use the Accused Products in an infringing manner. Thus, with full knowledge of the ’886 Patent as described in paragraphs 29-32 above, Zyxel induced its customers and end users to directly infringe the ’886 Patent by using the Accused Products to perform the infringing methods.

118. Zyxel’s acts of infringement have cause damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel’s wrongful acts in an amount subject to proof at trial.

NINTH COUNT

(Infringement of U.S. Patent No. 10,756,851)

119. Atlas incorporates by reference the allegations set forth in Paragraphs 1-118 of this Complaint as though fully set forth herein.

120. The ’851 Patent, entitled “Multiplexing Acknowledgment Messages in Response to Downlink Frames,” was duly and lawfully issued on August 25, 2020. Atlas is the owner of all right, title, and interest in the ’851 Patent. The ’851 Patent was filed on November 28, 2018 as Application No. 16/203,501 as a continuation of Application No. 15/151,433, filed on May 10, 2016 (which resulted in U.S. Patent No. 10,181,930), and further claims the benefit of U.S. Provisional Application No. 62/193,305, filed on July 16, 2015, U.S. Provisional Application No. 62/191,623, filed on July 13, 2015, U.S. Provisional Application No. 62/160,527, filed on

May 12, 2015, and U.S. Provisional Application No. 62/159,346, filed on May 10, 2015. *See* https://patentimages.storage.googleapis.com/f0/f1/7d/15808407b884d4/US10756851.pdf.

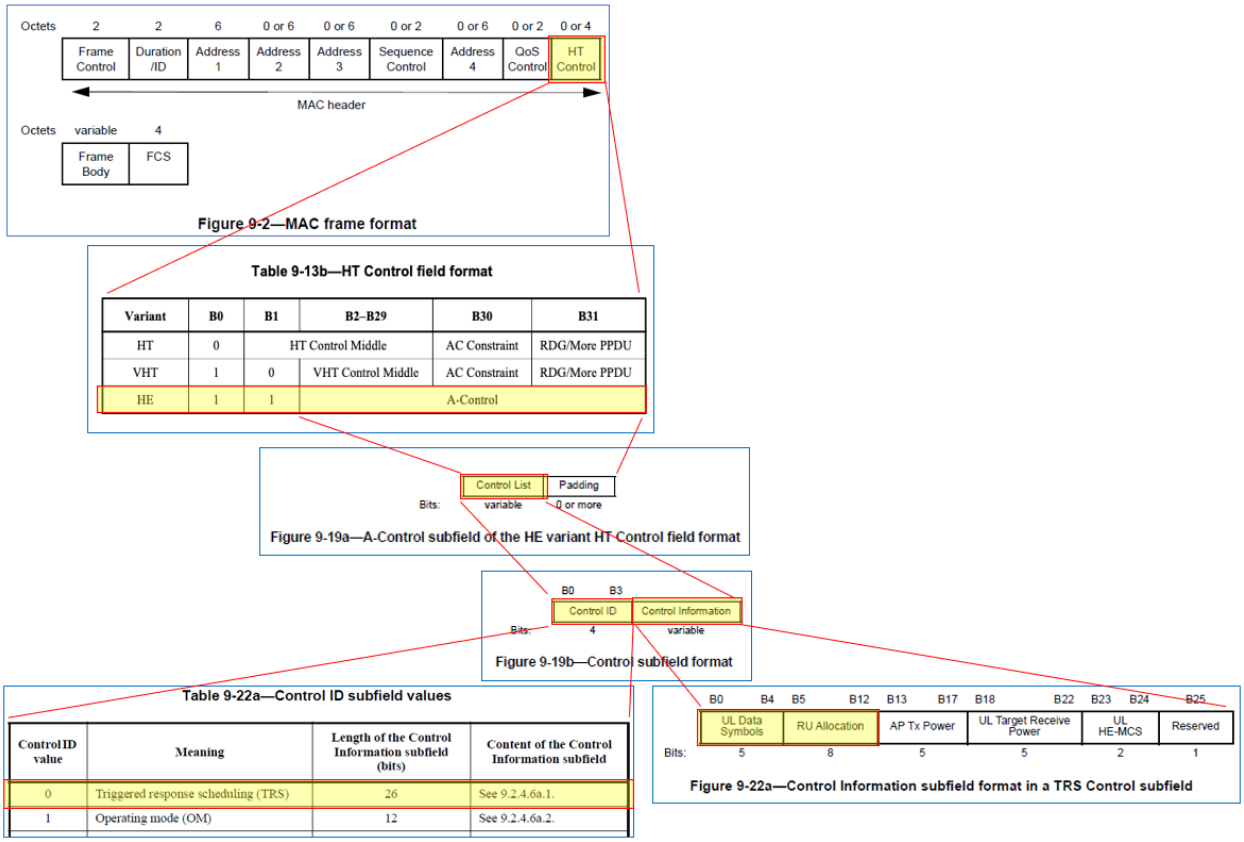
121. The ’851 Patent generally relates to a wireless communication system in which a plurality of acknowledgement messages from multiple station devices are multiplexed and transmitted simultaneously in response to multi-user downlink frames. The multi-user downlink transmission includes a control extension in a control field that includes scheduling information used by a plurality of station devices for the multi-user uplink acknowledgement. More specifically, the control extension includes scheduling information for a trigger-based response. The Accused AP Products and the Accused STA Products are configured and designed to implement the above multi-user downlink transmission protocol, and they do in fact implement that multi-user downlink transmission procedure during normal use as intended by Zyxel.

122. The Accused AP Products have storage mediums with instructions that cause internal processors to generate and transmit multi-user downlink frames with control fields including control extension indications that indicate whether the control field includes a scheduling extension. If included, the scheduling extension in the multi-user downlink frame generated and transmitted by the Accused AP Products will have scheduling information for the station(s) to transmit responsive uplink frames. Similarly, the Accused STA Products have one or more memories connected to one our more processors to cause: receiving multi-user downlink frames with control fields including control extension indications that indicate whether the control field includes a scheduling extension. If included, the scheduling extension in the multi-user downlink frame received by the Accused STA Products will have scheduling information for the Accused STA Products to generate and transmit responsive uplink frames.

123. Zyxel directly infringes the apparatus and computer-readable storage medium claims of the ’851 Patent under 35 U.S.C. § 271(a) by making, using, selling, and/or offering to sell in the United States, and/or importing into the United States products that directly infringe the ’851 Patent, including the above identified Accused Products. The Accused Products infringe at least claims 1 and 16 of the ’851 Patent by practicing the 802.11ax Standard, as indicated in

Zyxel's marketing materials for the Accused Products. The Zyxel Accused Products operate as AP devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to generate and transmit multi-user downlink frames with the claimed control field, control extension indication, and scheduling extension. *See e.g.*, 802.11ax-2021 § 4.3.15a (High efficiency (HE) STA); § 9.2.3 (General Frame Format); § 9.2.4.6.1 (HT Control Field); § 9.2.4.6.3a (HE Variant); § 26.5.2 (UL MU Operation); § 26.5.2.2 (Rules for Soliciting UL MU Frames); Figure 9-2 (MAC frame format); Figure 9-19a and 9-19b; and Figure 9-22a. Similarly, the Accused STA Products operate as STA devices that are designed by Zyxel and operate consistent with the requirements of 802.11ax. This includes the ability to receive multi-user downlink frames with the claimed control field, control extension indication, and scheduling extension. *See e.g.*, *id.*

124. For example, the following annotated and amalgamated figures from the Wi-Fi 6 Standard show the MAC downlink frame that an AP, such as one of Zyxel's Accused AP Products, generates and transmits during normal and intended operation. As shown in Figure 9-2, the MAC frame contains an HT Control field, the possible contents of which are shown in Table 9-13b. If bits B0 and B1 of the HT Control field are "11," that indicates the HT Control field has been extended to accommodate the 802.11ax standard using the HE variant, and the A-Control subfield will be present. The A-Control subfield has a Control List subfield shown in Figure 9-19a, which in turn has Control ID and Control Information subfields shown in Figure 9-19b. The Control ID subfield may have a value of "0," which (as shown in Table 9-22a) indicates that the Control Information subfield provides Triggered Response Scheduling. And when Triggered Response Scheduling is used, the Control Information subfield has UL Data Symbols and RU Allocation subfields (as shown in Figure 9-22a), which respectively indicate the number of OFDM data symbols and resource unit allocation for the uplink response.



125. In addition to directly infringing the '851 apparatus and computer-readable storage medium claims, Zyxel also indirectly infringes the '851 claims. Where acts constituting direct infringement of the '851 Patent are not performed by Zyxel, such acts constituting direct infringement of the '851 Patent are performed by Zyxel's customers or end-users who act at the direction and/or control of Zyxel, with Zyxel's knowledge. Upon information and belief, Zyxel intends to cause, and has taken affirmative steps to induce, infringement by importers, online stores, distribution partners, retailers, reseller partners, solution partners, consumers, end users, and other related service providers by at least, *inter alia*, creating advertisements that promote the infringing features of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing

wireless networking features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States.

126. Atlas is informed and believes, and on that basis alleges, that Zyxel indirectly infringes at least claims 1 and 16 of the '851 Patent by active inducement in violation of 35 U.S.C. § 271(b), by at least manufacturing, supplying, distributing, selling, and/or offering for sale the Accused Products to their customers and end users of Zyxel's Accused Products with the knowledge and intent that making, use, selling, offering to sell, or importing those products would constitute direct infringement of the '851 Patent.

127. For example, Zyxel advertises to its customers that it sells products that comply with the 802.11ax Standard. *See* https://service-provider.zyxel.com/global/en/wifi-6-solutions; https://www.zyxel.com/us/en/solutions/WiFi6-AP-Solution-20211125-829884.shtml. Zyxel also instructs its customers on how to connect the Accused Products to Wi-Fi networks so that they may practice the 802.11ax Standard. Once the Accused Products are installed, they will automatically implement the 802.11ax Standard based upon the hardware and software provided in the Accused Products. Zyxel also provides technical support to its customers and end users and encourages them to make, use, sell, offer to sell, and/or import the Accused Products to infringe the '851 Patent. Thus, with full knowledge of the '851 Patent as described in paragraphs 29-32 above, Zyxel induced its customers, partners, and end users to directly infringe the '851 Patent by making, using, selling, offering to sell, and/or importing the Accused Products.

128. Zyxel's acts of infringement have caused damage to Atlas, and Atlas is entitled to recover from Zyxel (or any successor entity to Zyxel) the damages sustained by Atlas as a result of Zyxel's wrongful acts in an amount subject to proof at trial.

WILLFULNESS

129. Prior to the filing of this complaint, or at least as of the date the initial complaint was filed, and certainly by the date of this complaint, Zyxel knew or should have known that it infringed the Asserted Patents.

130. As a company in the wireless electronics space, and more particularly a manufacturer of Wi-Fi 6 products, Zyxel is familiar with the Wi-Fi 6 Standard and the process by which it was adopted by the IEEE. For example, Zyxel knows that companies contribute technical submissions to the IEEE for inclusion in the Wi-Fi 6 Standard, and if IEEE members deem those contributions meritorious, they are incorporated into the Wi-Fi 6 Standard. Zyxel also knows that the companies are permitted to obtain patents on their contributions to the Wi-Fi 6 Standard. Zyxel further knows that Newracom was a major contributor to the Wi-Fi 6 Standard and one of the leaders in both number of technical submissions and number of adopted submissions to the Wi-Fi 6 Standard. Zyxel also knows that Newracom obtained nearly two hundred patents covering its contributions to the Wi-Fi 6 Standard, including the Asserted Patents.

131. Zyxel also knew of the Asserted Patents at least by June 8, 2021, when Atlas specifically notified Zyxel of them. More specifically, on that date, Atlas sent Zyxel a letter via email to the President of Zyxel Communications, Inc., Howie Chu, notifying Zyxel that it had "recently acquired Newracom's substantial Wi-Fi 6 SEP [Standard Essential Patent] portfolio." Ex. A at 1. Further, Atlas informed Zyxel that the Asserted Patents "cover[] key improvements in Wi-Fi technology developed by Newracom's internal R&D team and adopted in the 802.11ax Wi-Fi standard." *Id.* In that initial June 8, 2021 letter, Atlas specifically invited Zyxel to license the Asserted Patents. *Id.* A physical copy of this letter was delivered to Zyxel on June 23, 2021. Ex. B. On November 15, 2021, Atlas sent via email an additional letter to Zyxel (again, via Howie Chu). Ex. C at 1.

132. During this period and continuing for several months thereafter, Atlas repeatedly notified Zyxel of Atlas's portfolio and the Asserted Patents. For example, Atlas sent Zyxel 35 emails between June 8, 2021 and February 14, 2022. Ex. D. Those emails made repeated reference to Atlas's "Wi-Fi 6 Standard Essential Patent Portfolio," and continued to press Zyxel regarding the necessity to take a license under the Atlas patent portfolio. Atlas also made frequent telephone calls to Zyxel during that time period to discuss the Asserted Patents. Zyxel

received each of these letters, emails, and phone calls. Despite learning that Atlas owned a substantial patent portfolio covering Zyxel's Wi-Fi 6 product offerings, Zyxel continued to offer for sale, sell, import, distribute, and use its infringing Wi-Fi 6 products in the United States, without making any attempt to secure a license from Atlas. Zyxel has acted with willful disregard of the Atlas Patent Portfolio, refusing to engage in substantive discussions regarding the patent portfolio, and ultimately, in refusing to take a license under any of the Atlas Patents. Zyxel has acted with willful blindness regarding the Wi-Fi 6 patent portfolio of Atlas and its need to secure a license to that portfolio.

133. Zyxel has therefore proceeded to infringe the Asserted Patents with full and complete knowledge of their applicability to Zyxel's Accused Wi-Fi 6 Products without taking a license and without a good faith belief that the patents-in-suit are invalid and not infringed. At minimum, Zyxel willfully blinded themselves to their infringement of the Asserted Patents and consciously refused to respond to Atlas's licensing overtures; once Atlas told Zyxel that it needed to take a license to the Asserted Patents for its Wi-Fi 6 Products, Zyxel believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement from Atlas.

134. Zyxel's infringement of the Asserted Patents thus occurs with knowledge of infringement, objective recklessness, and/or willful blindness, and has been and continues to be willful and deliberate. Thus, Zyxel's infringement of the patents-in-suit is willful and deliberate, entitling Atlas to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for judgment and seeks relief against Zyxel as follows:

(a) For judgment that U.S. Patent Nos. '520, '259, '738,'442, '513, '679, '919, '886, and '851 have been and continue to be infringed by Zyxel;(b) For an accounting of all damages sustained by Plaintiff as the result of Zyxel's acts of infringement;

(c) For finding that Zyxel's infringement is willful and enhancing damages pursuant to 35 U.S.C. § 284;

(d) For a mandatory future royalty payable on each and every future sale by Zyxel of a product that is found to infringe one or more of the Asserted Patents and on all future products that are not colorably different from products found to infringe;

(e) For an award of attorneys' fees pursuant to 35 U.S.C. § 285 or otherwise permitted by law;

(f) For all costs of suit; and

(g) For such other and further compensatory relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure and Local Rule CV-38, Plaintiff demands a trial by jury of this action.

Dated: April 4, 2022

Respectfully submitted,

/s/ *Michael F. Heim*
Max L. Tribble, Jr.
Texas State Bar No. 20213950
Joseph S. Grinstein
Texas State Bar No. 24002188
Alejandra C. Salinas
Texas State Bar No. 24102452
SUSMAN GODFREY, LLP
1000 Louisiana Street, Suite 5100
Houston, Texas 77002
Telephone: (713) 651-9366
Facsimile: (713) 654-6666
mtribble@susmangodfrey.com
jgrinstein@susmangodfrey.com
asalinas@susmangodfrey.com

Kalpana Srinivasan
California State Bar No. 237460
Oleg Elkhunovich
California State Bar No. 269238
SUSMAN GODFREY, LLP
1900 Avenue of the Stars, 14th Floor
Los Angeles, CA 90067
Telephone: (310) 789-3100
Facsimile: (310) 789-3150
ksrinivasan@susmangodfrey.com
oelkhunovich@susmangodfrey.com

Michael F. Heim
Texas State Bar No. 09380923
Eric J. Enger
Texas State Bar No. 24045833
Blaine A. Larson
Texas State Bar No. 24083360
Alden G. Harris
Texas State Bar No. 24083138
William B. Collier, Jr.
Texas State Bar No. 24097519
HEIM, PAYNE & CHORUSH, LLP
1111 Bagby, Suite 2100
Houston, Texas 77002
Telephone: (713) 221-2000
Facsimile: (713) 221-2021
mheim@hpcllp.com

eenger@hpcllp.com
blarson@hpcllp.com
aharris@hpcllp.com
wcollier@hpcllp.com

T. John Ward, Jr.
Texas Bar No. 00794818
Email: jw@wsfirm.com
Andrea L. Fair
Texas Bar No. 24078488
Email: andrea@wsfirm.com
WARD, SMITH & HILL, PLLC
1507 Bill Owens Parkway
Longview, Texas 75604

S. Calvin Capshaw
Texas State Bar No. 03783900
Elizabeth L. DeRieux
Texas State Bar No. 05770585
CAPSHAW DeRIEUX, LLP
114 E. Commerce Ave.
Gladewater, TX 75647
Telephone: (903) 845-5770
Email: ccapshaw@capshawlaw.com

ATTORNEYS FOR ATLAS GLOBAL TECHNOLOGIES LLC

CERTIFICATE OF SERVICE

The undersigned certifies that on April 4, 2022, 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 under Local Rule CV-5(a)(3).

/s/*Michael F. Heim*
Michael F. Heim