

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
TEXARKANA DIVISION**

**VELOCITY COMMUNICATION  
TECHNOLOGIES, LLC,**

***Plaintiff,***

v.

**Arcadyan Technology Corporation,**

***Defendant.***

**Civil Action No.** \_\_\_\_\_

**JURY TRIAL DEMANDED**

**COMPLAINT FOR PATENT INFRINGEMENT**

Velocity Communication Technologies, LLC (“Velocity” or “Plaintiff”) brings this action and makes the following allegations of patent infringement relating to U.S. Patent Nos.: 8,675,570 (the “‘570 Patent”); 8,260,213 (the “‘213 Patent”); 8,238,832 (the “‘832 Patent”); 8,270,343 (the “‘343 Patent”); 8,213,870 (the “‘870 Patent”); 8,644,765 (the “‘765 Patent”); 9,083,401 (the “‘401 Patent”); 10,200,096 (the “‘096 Patent”); 9,444,577 (the “‘577 Patent”); 8,265,573 (the “‘573 Patent”); and 9,596,648 (the “‘648 Patent”) (collectively, the “patents-in-suit”). Defendant Arcadyan Technology Corporation (“Arcadyan” or “Defendant”) infringes the patents-in-suit in violation of the patent laws of the United States of America, 35 U.S.C. § 1 *et seq.*

**PLAINTIFF**

1. Plaintiff Velocity Communication Technologies, LLC (“Plaintiff” or “Velocity”) is a Delaware limited liability company that holds a pool of over 220 patent assets across 46 distinct patent families developed by leading pioneers from across the globe in the field of wireless communications, including Marvell Technology, Inc.; NXP Semiconductors N.V.; Freescale Semiconductor, Inc.; Blackberry Ltd.; and ZTE Corporation.

2. Plaintiff's patent pool includes a significant number of wireless networking patents essential to, and necessarily infringed by, the manufacture, sale, and operation of devices in compliance with the Institute of Electrical and Electronics Engineers (IEEE) 802.11ax standard, also referred to as the Wi-Fi 6 standard ("802.11ax Standard"). Plaintiff's patent portfolio not only includes each of the at-issue United States patents, but also an extensive number of additional U.S. patents not at issue in this case as well as numerous patents issued by the European Patent Office and the China National Intellectual Property Administration, among other foreign patent-issuing government bodies.

3. Each of the patents-in-suit is necessarily practiced when devices operate in compliance with the 802.11ax Standard.

#### **DEFENDANT**

4. Defendant Arcadyan Technology Corporation ("Arcadyan") is a corporation organized and existing under the laws of Taiwan, with its principal place of business at No. 8, Sec. 2, Guangfu Road, Hsinchu City 30071, Taiwan.

5. Arcadyan is engaged in the design, development, manufacture, and sale of wireless networking equipment, including wireless gateway, router, and extender products that operate in compliance with the 802.11ax Standard. Arcadyan designs, manufactures, and/or sells the accused Wi-Fi 6 and Wi-Fi 6E wireless gateway, router, and extender products at issue in this action, including devices that Arcadyan designs and manufactures for sale in the United States under the T-Mobile, Verizon Fios, and Mediacom brands.

#### **JURISDICTION AND VENUE**

6. This action arises under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has exclusive subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over Arcadyan. Arcadyan 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. Arcadyan has purposefully directed infringing activities at residents of the State of Texas, and this litigation results from those infringing activities. Arcadyan regularly sells (either directly or indirectly) its products within this judicial District. For example, Arcadyan has placed and continues to place infringing products into the stream of commerce via an established distribution channel, such as its partner distributors and carrier customers, with the knowledge or understanding that such products are being and will continue to be sold in this judicial District and within the State of Texas. Arcadyan is subject to this Court's specific and/or general personal jurisdiction pursuant to due process and the Texas Long Arm Statute, due at least to its substantial and pervasive business in this State and this judicial District, including at least part of its infringing activities alleged herein and deriving substantial revenue from goods sold to Texas residents.

8. Arcadyan is subject to this Court's specific personal jurisdiction pursuant to due process and the Texas Long Arm Statute based on its substantial business activities in the State of Texas and in this judicial District.

9. Arcadyan's infringing activities constitute a portion of Arcadyan's substantial business activities in the State of Texas and in this judicial District. As alleged herein, Arcadyan purposefully avails itself of the privilege of conducting its business activities in the State of Texas and in this judicial District, and, thus, submits itself to the jurisdiction of this Court.

10. Arcadyan also regularly does and solicits business, engaging in other persistent conduct targeting residents of Texas and residents of this judicial District, and/or derives 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 induced infringement) of infringing Accused Products in Texas, including this judicial District.

11. Arcadyan is subject to this Court's specific 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 Arcadyan 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 the Accused Products in Texas, including in this Judicial District. For example, Arcadyan is the applicant and grantee of record for the Federal Communications Commission equipment authorizations permitting the marketing of the Accused Products in the United States, and is the party responsible under 47 C.F.R. § 2.909(a) for their continued compliance. *See, e.g.*, FCC ID Nos. RAXE3200; RAXTMOG5AR; RAXWE7224443; RAXWE7224443B. As a condition of each grant, Arcadyan is obligated to label the equipment with the exact FCC ID

specified in its application. Each Accused Product accordingly bears an FCC ID beginning with grantee code RAX, which the FCC assigned to Arcadyan.

12. Arcadyan has placed and continues to place infringing products into the stream of commerce via established distribution channels, such as its partner internet service 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.

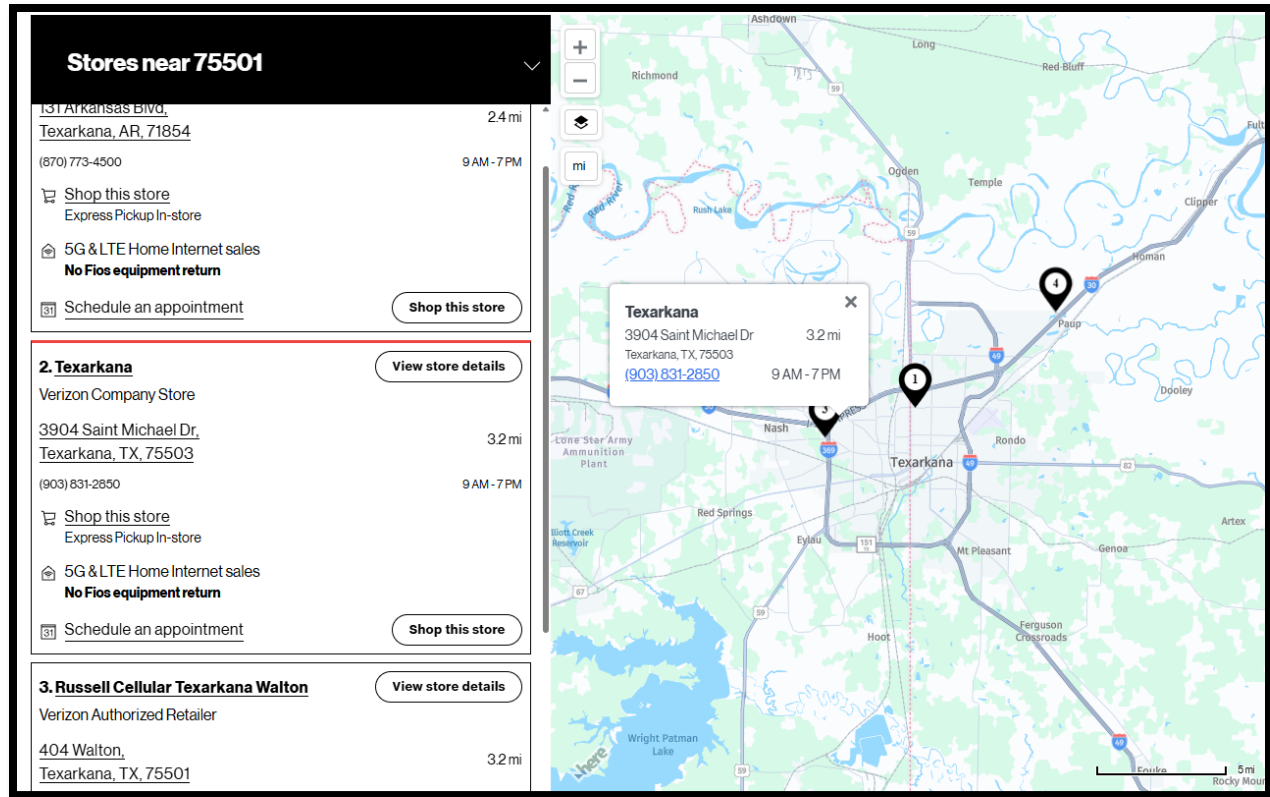
13. This Court has personal jurisdiction over Arcadyan directly and/or through the activities of Arcadyan's intermediaries, agents, related entities, distributors, importers, customers, subsidiaries, and/or consumers. Through the direction and control of these various entities, Arcadyan has committed 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 Arcadyan would not offend traditional notions of fair play and substantial justice. Upon information and belief, Arcadyan, directly and via its agents, distribution partners, internet service provider partners, retailers (including national retailers), reseller partners, solution partners, and other service providers in the United States, has placed and continues to place the infringing Accused Products into the United States stream of commerce. Arcadyan 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.

14. On information and belief, Arcadyan is engaged in research and development, manufacturing, importation, distribution, sales, and related technical services for home networks, including particularly devices designed to operate on Wi-Fi 6 networks consistent with the 802.11ax Standard. Arcadyan's Wi-Fi 6 products are made outside the United States of America

and are then imported into the United States, distributed via established distribution channels, and sold to end users via distribution partners, internet service provider partners, retailers, reseller partners, and solution partners. Those sales occur in the United States and throughout Texas, including in this Judicial District.

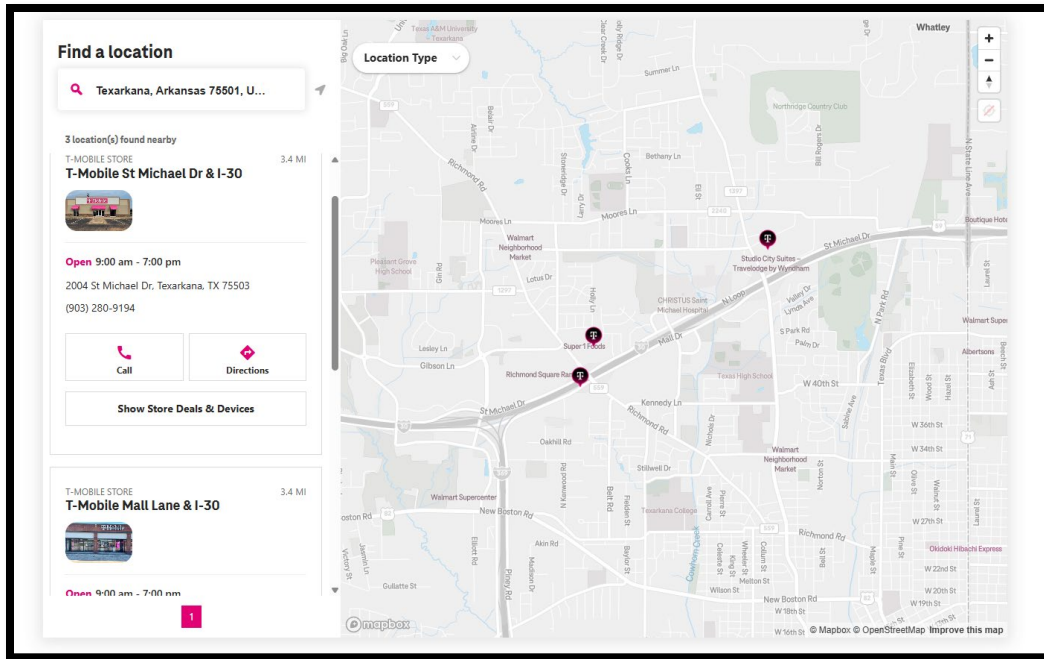
15. Arcadyan is the applicant and manufacturer of record with the FCC for numerous Wi-Fi 6 and Wi-Fi 6E products accused of infringement in this action, confirming that Arcadyan designs and configures such products for sale and use in the United States, including in this judicial District and the State of Texas.

16. Arcadyan utilizes established distribution channels to distribute, market, offer for sale, sell, service, and warrant the infringing Accused Products directly to consumers and other users in the United States, including by providing links to user manuals and applications on its products. On information and belief, the Accused Products have been sold by distributors within this Judicial District and in Texas, including by well-known and widely used internet service providers serving Texas, including at least Verizon and T-Mobile. For example, on information and belief, Arcadyan supplies Accused Products, including Wi-Fi 6 and Wi-Fi 6E routers, and router range extenders, for resale to Verizon customers in this Judicial District, including from Verizon's stores located in Texarkana, Texas.



*Verizon Store Locator*, VERIZON WEBSITE, available at: <https://www.spectrum.com/locations>

17. Additionally, on information and belief, Arcadyan supplies Accused Products, including Wi-Fi 6 gateways and routers, for resale to T-Mobile customers in this Judicial District, including from T-Mobile's retail store locations in Texarkana, Texas.



*T-Mobile Store Locator*, T-MOBILE WEBSITE, available at: <https://www.t-mobile.com/stores>.

18. Based on Arcadyan's connections and relationships with these internet service providers, national retailers, and distributors, Arcadyan knows that Texas is a termination point of its established distribution channels, including the online stores and internet service providers offering the Accused Products to users in Texas. Arcadyan therefore has purposefully directed its activities at Texas and should reasonably anticipate being brought before this Court, at least on this basis.

19. These suppliers and distributors import, advertise, offer for sale, and sell the Accused Products via their websites to United States consumers, including to consumers in Texas. Based on Arcadyan's connections and relationships, including supply contracts and other agreements with United States- and Texas-based distributors, internet service providers, and suppliers, Arcadyan knows and has known that Texas is a termination point of the established distribution channels for the infringing Accused Products. Arcadyan has purposefully directed its

activities at Texas and should reasonably anticipate being brought before this Court, at least on this basis.

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

21. Because this Court has personal jurisdiction over Arcadyan—a foreign corporation—venue is proper pursuant to 28 U.S.C. § 1391(c)(3) and 28 U.S.C. § 1400(b).

#### **THE 802.11AX (WI-FI 6) STANDARD**

22. Wireless Local Area Networks (WLANs) have become a foundational technology in modern digital communications. This is largely driven by the increasing ubiquity of mobile computing devices, streaming services, and cloud-based applications. WLANs operate over unlicensed spectrum bands, primarily in the 2.4 GHz and 5 GHz bands. More recently, the 6 GHz band has been made available for Wi-Fi use in certain regions of the world.

23. To ensure that users are able to communicate with one another despite the use of different networking equipment and end-user devices manufactured by different companies, it is important that WLAN operation is standardized. This ensures interoperability, reliability, and global adoption of Wi-Fi technologies. In the field of WLAN operation, standardization is organized through the Institute of Electrical and Electronics Engineers (IEEE), and more specifically under the 802.11 family of specifications, which is titled, “*Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications*.”

24. The original IEEE 802.11 standard was published in 1997 and specified data rates of 1Mbps and 2Mbps using the 2.4 GHz band and three PHY layer technologies: infrared, frequency-hopping spread spectrum (FHSS), and direct-sequence spread spectrum (DSSS). However, because of this relatively low data throughput, adoption was limited. Over the years, the 802.11 standard has been amended and enhanced with the contribution of additional technologies by leading companies that operate in the WLAN field.

25. In 1999, 802.11b and 802.11a were published that increased maximum throughput to 11Mbps in the 2.4 GHz band and 54 Mbps in the 5 GHz band, respectively. In 2003, 802.11g was published that combined the higher (54 Mbps) throughput rate of 802.11a with the backward compatibility in the 2.4 GHz band. This led to widespread adoption of Wi-Fi as a ubiquitous technology.

26. In 2009, 802.11n was released with High Throughput (HT) enhancements. 802.11n introduced multiple-input, multiple-output (MIMO) antenna systems, channel bonding, frame aggregation, and several PHY/MAC enhancements to support data throughput rates up to 600 Mbps, introducing a significant leap in the technical capabilities of Wi-Fi systems.

27. In 2013, IEEE introduced 802.11ac, which introduced Very High Throughput (VHT) features in the 5 GHz band. This amendment to the 802.11 standard expanded MIMO capabilities to support up to 8 spatial streams and supported multi-user MIMO in the downlink. These advancements improved network performance yet again in both home/personal as well as enterprise Wi-Fi networks.

28. Despite these improvements over the years, challenges remained. Due to the increasing prevalence of Wi-Fi-connected devices in daily life, legacy Wi-Fi technologies suffered

from significant performance degradation as more devices competed for access to a given wireless network.

29. To address the growing demands for higher capacity and more predictable performance in dense deployment scenarios, the IEEE formed Task Group AX in 2014. The group's mission was to develop a High Efficiency (HE) WLAN standard to improve throughput-per-area and reduce contention overhead.

30. The standard resulting from this work is the 802.11ax Standard, which is commonly known as the Wi-Fi 6 standard. The 802.11ax Standard represented a major architectural upgrade to Wi-Fi networks. Key innovations in the 802.11ax Standard include Orthogonal Frequency Division Multiple Access (OFDMA) (allowing simultaneous transmissions to multiple users by subdividing channels); uplink and downlink multiple-user, multiple input, multiple output (MU-MIMO); Beamforming (a key innovation that improves signal strength and spatial efficiency by directing wireless transmissions toward specific devices rather than broadcasting in all directions); and improved MAC layer efficiency. The first draft of the 802.11ax Standard was published in March 2016. The Standard then underwent multiple revisions and industry trials before final approval by the IEEE on February 9, 2021 as IEEE Std 802.11ax-2021.

31. Several leading wireless communication technology companies contributed technologies to the 802.11ax Standard. Among the companies to substantially contribute to the 802.11ax Standard are: Marvell Technology, Inc.; NXP Semiconductors N.V.; and ZTE Corporation. Velocity owns a portfolio of patents developed by these companies and reflecting their substantial contributions to the groundbreaking leap forward in WLAN technology reflected in the 802.11ax Standard now widely adopted by industry.

**ARCADYAN'S KNOWLEDGE OF THE PATENTS-IN-SUIT**

32. Arcadyan has known that NXP possessed patents relating to the 802.11ax Standard since at least September 29, 2020, which is when NXP submitted a Letter of Assurance for essential patent claims (“LOA”) to the IEEE indicating that NXP owns patents that may be essential to the implementation of 802.11ax. Further, Arcadyan has known that ZTE was the developer of patented technology relating to the 802.11ax Standard at least since March 4, 2024, which is when ZTE submitted a LOA to the IEEE indicating that it owned patents that may be essential to the implementation of the 802.11ax Standard.

33. The Letters of Assurance submitted to the IEEE by the predecessor owners of the patents-in-suit provided notice to Arcadyan, or, at a minimum, made Arcadyan subjectively aware of a high probability that patents essential to the 802.11ax Standard existed and were owned by the predecessor owners. Arcadyan nonetheless took deliberate actions to avoid confirming the existence and ownership of those patents, and its failure to acquire actual knowledge of the patents-in-suit was the product of that deliberate avoidance.

34. Moreover, Arcadyan had notice of the patents-in-suit, and of Velocity’s allegations that the sale of Wi-Fi 6-enabled devices infringes those patents, no later than July 2025, when Velocity filed suit against several of the leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States, including: Acer Inc.; Aruba Networks, LLC; ASUSTeK Computer, Inc.; Cisco Systems, Inc.; Dell Technologies Inc.; D-Link Corporation; Ericsson Inc.; Hewlett Packard Enterprise Company; HP Inc.; Juniper Networks, Inc.; Lenovo Group Ltd.; LG Electronics, Inc.; Motorola Mobile Communication Technology Ltd.; Netgear, Inc.; OnePlus Technology (Shenzhen) Co., Ltd.; and TP-Link Corporation Limited. All patents-in-suit (with the exception of the ‘577 Patent) were asserted against each of these leading sellers of Wi-Fi 6 devices.

35. In addition, and at minimum, Arcadyan has been aware of the patents-in-suit and its infringement thereof as of the date of filing of this Complaint.

**THE ASSERTED PATENTS**

**U.S. PATENT NO. 8,675,570**

36. U.S. Patent No. 8,675,570 entitled, *Scalable OFDM and OFDMA Bandwidth Allocation in Communication Systems*, was filed on March 24, 2008. The ‘570 Patent claims priority to U.S. Provisional Patent Application No. 60/896,859, which was filed on March 23, 2007. The ‘570 Patent is subject to a 35 U.S.C. § 154(b) term extension of 1,031 days. A true and correct copy of the ‘570 Patent is attached hereto as Exhibit 1.

37. The ‘570 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘570 Patent.

38. The ‘570 Patent is directed to solving the technical challenges of flexibly allocating bandwidth in advanced communication systems like orthogonal frequency division multiple access (OFDMA). The ‘570 Patent addresses the problem of how to seamlessly aggregate different channel bandwidths and partition spectrum for multiple users without the performance degradation caused by inter-carrier interference and the waste of valuable spectrum on excessive guard bands.

39. At the time of the invention of the ‘570 Patent, the field of wireless communications, particularly those using Orthogonal Frequency Division Multiplexing (OFDM), faced significant technical challenges related to managing interference between adjacent frequency channels and maximizing the use of limited spectrum. The conventional solution to prevent such interference was to insert non-data-bearing “guard bands” or “guard subcarriers” between channels, which created wasteful gaps in the usable spectrum.

40. The problem of spectral inefficiency caused by these conventional guard bands was a well-recognized technical barrier that limited the data capacity and performance of wireless

networks. The prior art's reliance on these wasteful guard intervals demonstrated a failure to solve the underlying technical problem of how to structure communication signals to allow for contiguous, interference-free channel allocation. This challenge of designing a signal structure that could eliminate guard bands while maintaining orthogonality across channel boundaries was a significant technical challenge in the field, as the prevailing methods sacrificed a portion of the available bandwidth to manage interference.

41. At the time the '570 Patent inventions were conceived, existing systems had difficulty efficiently allocating bandwidth without wasting spectrum. The '570 Patent specification states, "the subcarrier spacing is 9.6 kHz and cannot be divided evenly by nominal carrier bandwidths such as 1.25 MHz, 2.5 MHz, 5 MHz, 10 MHz, or 20 MHz. As a result, some of the edge subcarriers are left as guard subcarriers with no signal transmission. This condition results in a lower spectrum usage or spectral efficiency." Ex. 1, at, col. 6:27-34.

42. The '570 Patent teaches allocation of spectral bandwidth in modern wireless communication systems. The method and systems disclosed in the '570 Patent involve the use of a common, precisely chosen subcarrier spacing that is mathematically aligned with both the channel raster and all nominal channel bandwidths. By implementing this technique, the '570 Patent improves spectral efficiency by allowing multiple carriers to be aggregated with reduced or eliminated guard bands, minimizing inter-carrier interference. The inventions disclosed in the '570 Patent provide significant benefits to the function of wireless communication hardware.

43. The inventions disclosed in the '570 Patent enhance the performance and capacity of wireless communication equipment by providing a scalable and spectrally efficient method for allocating bandwidth. The methods and systems of the '570 Patent improve the flexible aggregation of different channel widths and the support of multiple simultaneous users with

minimal wasted spectrum from guard bands and reduced inter-carrier interference. The technologies disclosed in the ‘570 Patent improved throughput and operational efficiency of wireless systems.

44. The inventions disclosed in the ‘570 Patent provide improvements to the function of the hardware in a wireless network by enabling flexible and dense bandwidth allocation. The ‘570 Patent teaches the use of a common, aligned subcarrier grid across all channel bandwidths with reduced or eliminated guard bands. This precise alignment across carrier boundaries minimizes inter-carrier interference and maximizes the use of available spectrum, enhancing the data capacity and overall efficiency of the wireless network.

45. The ‘570 Patent family has been cited by 90 United States and international patents and patent applications as relevant prior art. The following companies and research institutions have cited the ‘570 Patent as relevant prior art:

- Qualcomm Incorporated
- Samsung Electronics Co., Ltd.
- Intel IP Corporation
- Apple Inc.
- Microsoft Technology Licensing, LLC
- LG Electronics Inc.
- Nokia Solutions and Networks Oy
- NEC Corporation
- Telefonaktiebolaget LM Ericsson
- Motorola Mobility LLC
- Interdigital CE Patent Holdings
- NXP BV
- Wi-Lan, Inc.
- Huawei Technologies Co., Ltd.
- Mediatek Inc.
- Panasonic Holdings
- Sharp Kabushiki Kaisha
- Fujitsu Mobile Communications Limited
- Futurewei Technologies, Inc.
- Electronics and Telecommunications Research Institute

**U.S. PATENT NO. 8,260,213**

46. U.S. Patent No. 8,260,213 entitled, *Method and Apparatus to Adjust a Tunable Reactive Element*, was filed on September 15, 2009. The '213 Patent claims priority to U.S. Provisional Patent Application No. 61/192,091, which was filed on September 15, 2008. The '213 Patent is subject to a 35 U.S.C. § 154(b) term extension of 414 days. A true and correct copy of the '213 Patent is attached hereto as Exhibit 2.

47. The '213 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the '213 Patent.

48. The technologies disclosed in the '213 Patent improve the efficiency and accuracy of signal transmission in wireless communication systems by dynamically adjusting tunable reactive elements.

49. The '213 Patent teaches methods and apparatuses that enhance radio frequency (RF) performance and impedance matching, especially in environments where operating frequencies and channel bandwidths vary, by detecting reactance drift and dynamically correcting it to maintain optimal signal quality.

50. The '213 Patent is directed to solving the problem of impedance mismatch and reactance drift in wireless RF transmission systems. This impedance mismatch can lead to poor power transfer efficiency, signal distortions that violate spectral mask requirements, degraded modulation accuracy (increased Error Vector Magnitude (EVM)), and reduced transmitted power.

51. At the time the inventions of the '213 Patent were conceived, the field of radio frequency (RF) design faced significant challenges in maintaining the performance of wireless communication devices. One difficulty with existing prior art systems identified in the '213 Patent specification was ensuring the stability of tunable reactive elements used in antenna matching networks.

52. Prior art systems at the time of the ‘213 Patent had difficulty maintaining stable and accurate performance in circuits using tunable components. The patent specification explicitly identifies this technical problem, stating that “Tunable reactive elements such a Voltage Variable Capacitors (VVCs) can be affected by a drift in reactance due to a change in temperature or residual polarization.” Ex. 2, at col. 1:19-21. This problem in prior art systems degraded device performance and “can cause a mismatch which in turn results in a reduction in antenna performance.” *Id.*, at col. 1:25-26.

53. The inventions disclosed in the ‘213 Patent improve radio frequency (RF) performance in wireless devices by teaching an adaptive tuning architecture capable of dynamically adjusting antenna system components in real time.

54. The inventions disclosed in the ‘213 Patent employ dedicated components such as a reactance detection circuit to monitor the properties of the transmitted signal, and an error correction circuit to detect any drift from a desired reactance and generate a correction signal, ensuring the antenna system remains optimally tuned for high signal integrity and power efficiency.

55. The inventions disclosed in the ‘213 Patent provide significant benefits and improvements to the function of the RF hardware in a wireless device by ensuring efficient and high-fidelity signal transmission. This is particularly beneficial in devices compliant with the 802.11ax Standard, which are capable of communicating over multiple frequencies and bandwidths and exhibit operating mode switching. The ‘213 Patent, by teaching detecting the reactance of a tunable element, comparing it to a desired state, and generating a correction signal to compensate for drift, improves the wireless transmitter performance.

56. The “reactance” referred to in the ‘213 patent refers to a physical property of an RF component.

57. The claimed “first tunable reactive element” is not an abstract variable; it is a physical component such as a voltage variable capacitor (VVC) or other tunable capacitive or inductive element whose reactance changes with applied voltage, current, or control signals.

58. The signals recited in the claims of the ‘213 patent—*e.g.*, first, second, difference, and third signals—are electronic or digital signals that exist in the RF, analog, or digital control circuitry of a wireless device, and the “integration” of the difference signal is performed by an electronic integration circuit or processing logic, not by a human mind. *See* Figures 5-6, and 9 of the ‘213 Patent.

59. The ‘213 patent specification explains that prior art antenna matching networks using tunable reactive elements suffered from reactance deviations or drift due to changing operating frequencies, bandwidth configurations, temperature and residual polarization, which caused impedance mismatch and reduced antenna performance, but did not correct that drift. Prior art systems typically set the tunable element to a target value and left it there, without a dedicated reactance detection circuit and error integration circuit measuring and compensating for drift during operation.

60. The ‘213 Patent improves RF hardware performance through a specific combination of circuits that measures reactance and corrects for its drift during device operation. A signal source coupled to the first tunable reactive element generates a first signal. A reactance detection circuit detects from that first signal the reactance of the first tunable reactive element and generates a second signal representing that measured reactance. An error correction circuit receives a control signal representing a desired reactance, detects a drift from the desired reactance

from a comparison of the control signal to the second signal, and generates a third signal that is applied to the first tunable reactive element to adjust its reactance to the desired value notwithstanding changes in temperature and residual polarization.

61. At the time of the '213 Patent, it was not well-understood, routine, or conventional in RF design to detect, compare, integrate, and correct reactance drift in the manner taught and claimed by the patent. Using a reactance detection circuit coupled to a reactive element to generate a signal representing reactance, comparing that signal to a desired reactance control signal, integrating the resulting error, and driving a tunable reactive element with the integrated correction signal to maintain its reactance at the desired value over time was not well-understood, routine, or conventional. Instead, RF designers typically relied on static tuning of matching networks, manual retuning, or coarse-grained calibration procedures that did not dynamically correct reactance drift caused by temperature variation and residual polarization.

62. The teachings of the '213 patent provide concrete technological benefits by enabling the RF front-end and antenna matching network to maintain a desired reactive state over a wide range of operating frequencies, bandwidths, and environmental conditions. By monitoring the effective reactance seen at the tunable element (or parameters representative thereof), comparing it to a desired reactance, integrating the resulting error, and driving the tunable element with a correction signal, the claimed inventions improve RF power transfer efficiency, reduce reflections and mismatch loss, and help maintain modulation accuracy in a way that was not achieved by prior art approaches.

63. On April 13, 2026, this Court denied a motion for judgment on the pleadings challenging the patent eligibility of the '213 Patent under 35 U.S.C. § 101. *Velocity Comm'n Techs., LLC v. OnePlus Tech. (Shenzhen) Co.*, Case No. 5:25-cv-00098-RWS, Dkt. No. 122 (E.D.

Tex. Apr. 13, 2026) (Schroeder, J.) (the “*OnePlus* Order”). Considering allegations materially identical to those set forth above, the Court held that “[f]actual disputes exist as to whether the ‘213 Patent claims an inventive concept at *Alice* Step Two,” and that it therefore “need not and does not address [claim] representativeness and whether the patent is directed to an abstract idea at *Alice* Step One.” *OnePlus* Order at 5.

64. In rejecting the argument that Velocity’s inventive-concept allegations were pled in “conclusory fashion,” the Court held that, “far from conclusory, Velocity’s allegations explain what was done before and what the invention of the ‘213 Patent does differently that is not conventional.” *Id.* at 6. The Court found that the movant “d[id] not come close to explaining whether the entire invention is made up of only conventional technology,” and that, on the record before it, the Court was “not convinced that the claimed invention merely adds computer functionality to increase the speed or efficiency of tuning a tunable reactive element.” *Id.* To the contrary, distinguishing the movant’s cases, the Court concluded that “there are still enough plausible allegations in the [complaint] such that a factual dispute remains for *Alice* Step Two,” and denied the motion. *Id.* at 7; *see also id.* at 14 (“**ORDERED** that OnePlus’s motion for judgment on the pleadings ... pursuant to 35 U.S.C. § 101 is **DENIED** with respect to Velocity’s claims of infringement of the ‘213 Patent.”) (emphasis in original).

65. The ‘213 Patent family has been cited by several United States and international patents and patent applications as relevant prior art. Specifically, patents issued to STMicroelectronics NV and Raytheon Company have cited the ‘213 Patent family as relevant prior art.

#### **U.S. PATENT NO. 8,238,832**

66. U.S. Patent No. 8,238,832 entitled, *Antenna Optimum Beam Forming for Multiple Protocol Coexistence on a Wireless Device*, was filed on August 27, 2008. The ‘832 Patent claims

priority to Provisional Application No. 60/968,467, which was filed on August 28, 2007. The ‘832 Patent is subject to a 35 U.S.C. § 154(b) term extension of 661 days. A true and correct copy of the ‘832 Patent is attached hereto as Exhibit 3.

67. The ‘832 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘832 Patent.

68. The ‘832 Patent is directed to solving the problem of signal interference that arises when a single wireless device must simultaneously communicate with multiple remote devices using different wireless protocols. This cross-protocol interference can lead to degraded signal quality, reduced data throughput, and diminished reliability for all communicating devices.

69. The ‘832 Patent identifies the shortcomings of the prior art concerning wireless communication systems employing antenna arrays. Specifically, the specification describes that traditional methods of antenna beamforming often fail to efficiently manage and optimize beam patterns for simultaneous communications, particularly in environments requiring the coexistence of multiple wireless communication protocols. These methods may not adequately calculate steering matrices to suppress interference (crosstalk) between separate communication paths, leading to reduced link quality, degraded multi-user throughput, and suboptimal utilization of the antenna array resources.

70. The ‘832 Patent is directed to a technological improvement in how wireless devices manage simultaneous communications in complex radio frequency environments. The ‘832 Patent’s methods and systems for forming optimized beam patterns for multiple, coexisting communication protocols is a technological solution aimed at solving the specific technical problem of signal interference and crosstalk.

71. The '832 Patent teaches improvements in wireless networking technology by generating and shaping multiple antenna beam patterns so that each beam not only directs its signal to the intended recipient but also actively suppresses its signal strength in the direction of other simultaneous communications. The claimed method in the '832 Patent addresses inherent technological challenges in multi-user wireless systems by enabling a single device to maintain distinct, reliable communication paths with multiple remote devices, thereby increasing throughput.

72. The '832 Patent describes conventional wireless transmission mechanisms at the time the inventions disclosed in the '832 Patent were conceived exhibited deteriorated performance when multiple wireless communication protocols must coexist on the same wireless device. When multiple communication paths are established without optimized beam forming, signal transmissions intended for one remote device can create significant interference along communication paths to other remote devices.

73. The inventions disclosed in the '832 Patent enhance the performance and reliability of wireless networking equipment by improving beamforming for multiple protocol coexistence on devices with antenna arrays. Through intelligent steering matrix calculation and channel state information feedback, the technologies disclosed in the '832 Patent allow wireless devices to establish multiple simultaneous communication paths with different beam patterns that minimize interference between concurrent transmissions.

74. The '832 Patent improved wireless communication equipment performance by addressing the technical challenges of spectrum efficiency and multi-user throughput as compared to prior art wireless networking equipment. The '832 Patent achieves this improvement through

disclosing methods and systems for suppressing signal strength in directions that would cause crosstalk while maintaining primary signal strength along intended transmission angles.

75. On April 13, 2026, this Court denied a Rule 12(b)(6) motion challenging the patent eligibility of the ‘832 Patent under 35 U.S.C. § 101. *Velocity Commc’n Techs., LLC v. ASUSTeK Comput. Inc.*, Case No. 5:25-cv-00098-RWS, Dkt. No. 123 (E.D. Tex. Apr. 13, 2026) (Schroeder, J.) (the “*ASUSTeK Order*”). Considering allegations materially identical to those set forth above, the Court held that “[f]actual disputes exist as to whether the ‘832 Patent claims an inventive concept at *Alice* Step Two,” and that it therefore “need not and does not address [claim] representativeness and whether the patent is directed to an abstract idea at *Alice* Step One.” *ASUSTeK Order* at 5.

76. The Court found that “there is an ordered combination described in the specification and tied to the claims of the ‘832 Patent that teaches [a] solution” to the problem of “deteriorated performance when multiple wireless communication protocols ... coexist on the same wireless device,” (*id.* at 5-6) identifying (1) determining angles of arrival, (2) calculating phase correction coefficients, (3) applying those coefficients to an antenna array to create a beam pattern, and (4) periodically adjusting the beam pattern of the antenna array — and observing that “[t]hese concepts can also be found in the claims.” *Id.* at 6 (citing the ‘832 Patent, cls. 22, 25, 26, 27, and 31). The Court rejected the contention that the claimed invention was conventional merely because previous wireless protocols were themselves typical at the time, explaining that “the mere existence of wireless devices supporting [known] protocols is not what the ‘832 Patent claims as the invention,” and that such an argument “does not come close to grappling with whether the specific combination of the claim elements of the ‘832 Patent was well-understood, routine, or

conventional.” *Id.* at 6-7. The Court concluded “that a factual dispute remains for *Alice* Step Two” and denied the motion. *Id.* at 7; *see also id.* at 15.

77. The Court further observed that it was “not currently persuaded by [the movant’s] representativeness and [*Alice*] Step One arguments,” and that “the focus of the claims is not so high-level as [the movant] characterized it for Step One.” *Id.* at 5 n.2.

78. The ‘832 Patent family has been cited by 18 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘832 Patent family as relevant prior art:

- Intel Corporation
- Sprint Communications L.P.
- Hewlett Packard Enterprise Development LP
- Kabushiki Kaisha Toshiba
- Panasonic Avionics Corporation
- Siemens Aktiengesellschaft
- Texas Instruments Incorporated
- Qualcomm Incorporated
- Apple Inc.

#### **U.S. PATENT NO. 8,270,343**

79. U.S. Patent No. 8,270,343 entitled, *Broadcasting of Textual and Multimedia Information*, was filed as U.S. Patent Application No. 11/722,295 on June 20, 2007. The ‘343 Patent claims priority as a national stage entry under 35 U.S.C. § 371 to International Patent Application No. PCT/EP04/14906, which was filed on December 20, 2004. The ‘343 Patent is subject to a 35 U.S.C. § 154(b) term extension of 1,486 days. A true and correct copy of the ‘343 Patent is attached hereto as Exhibit 4.

80. The ‘343 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘343 Patent.

81. The technologies disclosed in the ‘343 Patent solve a key challenge in wireless communications: the efficient broadcasting of files containing both textual and multimedia data formats.

82. The ‘343 Patent identifies the shortcomings of the prior art in wireless transmission of mixed-media content. Specifically, the specification describes that conventional methods fail to efficiently transmit data containing both textual and multimedia information. These methods treat the entire data transmission as a single, large entity, which is inefficient. This leads to poor utilization of transmission bandwidth and excessive latency. The ‘343 Patent notes, “as the data content becomes richer, the size of files on the data carousel increases to such an extent that transmission time becomes excessive.” Ex. 4, at col. 2:34-36.

83. The ‘343 Patent details a method where a single block of text and multiple sub-blocks of related multimedia data are packaged together into time-sliced packets. This enables the simultaneous and efficient transmission of disparate data types, improving overall network throughput and user experience.

84. The ‘343 Patent is directed to solving the problem of inefficient data handling and resource allocation in advanced wireless broadcast systems, especially when transmitting files containing a mix of data types.

85. The ‘343 Patent addresses the challenge that arises when different data types (such as a single textual block and multiple multimedia sub-blocks) are not processed and packaged for simultaneous broadcast. This inefficiency leads to poor utilization of valuable radio frequency resources, increased protocol overhead, higher latency, and reduced aggregate network throughput.

86. The '343 Patent teaches the use of various techniques to manage and efficiently broadcast textual and multimedia information simultaneously in wireless communication systems. These techniques include the use of improved data structuring, fragmentation, and advanced scheduling mechanisms, including the "time-slicing of packets." "The inventive concept maintains a low bandwidth occupation." Ex. 4, at col. 10:60-61.

87. The inventions disclosed in the '343 Patent improve the efficiency and aggregate throughput of wireless data transmission, particularly in environments with multiple users, leading to better utilization of wireless spectrum Resource Units (RUs), reduced protocol overhead, and improved overall performance. The inventions disclosed in the '343 Patent provide significant benefits and improvements to the function of the physical layer (PHY) and the Medium Access Control (MAC) layer hardware in a wireless communication system. "By implementing the inventive concepts, the average access time is reduced substantially." Ex. 4, at col. 10:48-50.

88. The inventions disclosed in the '343 Patent provide significant benefits and improvements to the function of the hardware in a wireless communication system by enabling the efficient, simultaneous broadcast of mixed-media content. This is particularly beneficial in high-density, high-efficiency wireless environments (such as those practicing the 802.11ax Standard) where structured data is broadcast to multiple users. The system's ability to uniquely process different data types—maintaining textual information as a single integral block while partitioning multimedia information into multiple sub-blocks, and then packaging both into time-sliced packets for a unified broadcast greatly enhances the efficiency and aggregate throughput of data transmission in a wireless network.

89. The inventions disclosed in the '343 Patent enhance the performance of wireless networking equipment by introducing a more efficient way to broadcast files containing both text

and multimedia. The technologies disclosed in the ‘343 Patent advanced the operational efficiency and data throughput of wireless systems by intelligently packaging different data types together for simultaneous transmission, a significant improvement over prior art methods.

90. On April 13, 2026, this Court denied a motion for judgment on the pleadings challenging the patent eligibility of the ‘343 Patent under 35 U.S.C. § 101. *Velocity Commc’n Techs., LLC v. Cisco Sys., Inc.*, Case No. 5:25-cv-00098-RWS, Dkt. No. 124 (E.D. Tex. Apr. 13, 2026) (Schroeder, J.) (the “*Cisco Order*”). Considering allegations materially identical to those set forth above, the Court held that “[f]actual disputes exist as to whether the ‘343 Patent claims an inventive concept at *Alice* Step Two,” and that it therefore “needs not and does not address [claim] representativeness and whether the patent is directed to an abstract idea at *Alice* Step One.” *Cisco Order* at 13.

91. Velocity argued that the inventive concept lies in “maintaining the textual block intact while partitioning multimedia into smaller pieces and transmitting both via a unified time-sliced broadcast,” and that “whether the specific coordination of text-block preservation and time-sliced multimedia transmission was well-understood or conventional is a question of fact.” *Id.* “The Court agree[d].” *Id.* Crediting allegations materially identical to those set forth above — that the ‘343 Patent addresses “the challenge that arises when different data types ... are not processed and packaged for simultaneous broadcast;” that it teaches techniques including “improved data structuring, fragmentation, and advanced scheduling mechanisms;” that “intelligently packaging different data types together for simultaneous transmission” was “a significant improvement over prior art;” and that, by implementing the inventive concepts, “the average access time is reduced substantially” while “low bandwidth occupation” is achieved — the Court held that “Velocity has made plausible factual allegations about why aspects of its

claimed inventions were not conventional,” and denied the motion to dismiss. *Id.* at 13-14 (quoting *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1317-18 (Fed. Cir. 2019)); *see also id.* at 18-19.

92. The ‘343 Patent family has been cited by at least 27 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘343 Patent family as relevant prior art:

- Telefonaktiebolaget LM Ericsson
- Samsung Electronics Co., Ltd.
- Huawei Technologies Co., Ltd.
- Cisco Technology, Inc.
- Qualcomm Incorporated

**U.S. PATENT NO. 8,213,870**

93. U.S. Patent No. 8,213,870 entitled, *Beamforming Using Predefined Spatial Mapping Matrices*, was filed on October 15, 2008. The ‘870 Patent claims priority to U.S. Provisional patent Application No. 60/980,036, which was filed on October 15, 2007. A true and correct copy of the ‘870 Patent is attached hereto as Exhibit 5.

94. The ‘870 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘870 Patent.

95. The ‘870 Patent claims concrete, computer-networking improvements to the functioning of wireless Multiple Input Multiple Output (“MIMO”) systems. The claims recite (i) storing a codebook of stored predefined spatial mapping matrices; (ii) sequentially and iteratively transmitting data packets using different spatial mapping matrices; (iii) selecting a matrix for subsequent transmissions based on measured reception quality; and (iv) re-selecting another matrix when packet-error-rate (PER) or data-rate thresholds are not met. *See* Ex. 5 at 1:62-2:7.

96. The patent also claims a complementary directional probing mechanism that iteratively re-aims the transmitter’s directional probing using beamforming until a channel

estimate (or acknowledgment) is received, and then forms a beamformed channel from that estimate. *See* Ex. 5, at Claim 5-10; *id.*, at Claims 12-14; *id.*, at Claims 16-20.

97. These claim-recited mechanisms address concrete technical deficiencies identified in the art: sounding processes that did not propagate as far as beamformed data, adding overhead and delaying data transmission; and fixed/non-adaptive mapping wasted throughput. The ‘870 Patent’s claims cure those deficiencies by directionally probing, measuring link quality, and adapting matrix choice against defined thresholds (packet error rate (PER) and data rate).

98. The claimed solution improves the functioning of the wireless system itself. By directionally probing to form (or re-form) beamformed channels, the wireless network range is extended. Dynamically changing steering matrices in response to defined packet-level metrics such as packet error rate (PER) and data rates maintain higher modulation and coding scheme results, thus improving latency and throughput.

99. The claims are technically specific and tethered to hardware: they require memory for storing codebooks, transmission controllers, and one or more antennas configured for directional transmissions that perform the recited iterative steps and threshold checks.

100. The recited quality-metric gating is not generic “optimization.” It requires (a) measuring packet-level quality (packet error rate (PER)/data rate) on wireless electromagnetic wave transmissions, and (b) re-selecting a different predefined spatial mapping matrices when the defined thresholds are violated (Claim 1). That algorithmic control loop alters physical-layer behavior (beam directions and spatial stream mapping), producing measurable signal-to-noise ratio (SNR) and data throughput gains—a quintessential improvement to the operation of the wireless network.

101. As of the October 2007 timeframe, it was not routine or conventional to (a) sequentially hop through predefined, directional spatial mapping matrices while sending data, (b) select among those matrices based on measured reception quality for subsequent transmissions, and (c) pair that with directional probing that iteratively re-aims until a channel estimate or acknowledgment is received—as the ‘870 claims require.

102. The claims of the ‘870 Patent require particular data structures (*e.g.*, a stored codebook of predefined spatial mapping matrices), particular control logic (sequential/iterative transmissions, acknowledgement (ACK packet)/estimate checks, threshold-based re-selection), and particular physical operations at the physical layer (PHY) (beamformed transmission, steering-matrix generation), all confined to wireless communication hardware.

103. The specification further teaches implementable codebook designs (*e.g.*, phasor vectors on the unit circle; unitary DFT/Hadamard sub-matrices with  $Q^H Q = I$ ) (*see* Ex. 5, at col. 7:64-8:11) to enable skilled artisans to practice the selection mechanisms in orthogonal frequency division multiplexing (OFDM) MIMO contexts—underscoring the claims’ technological specificity and practical application.

104. Accordingly, the ‘870 Patent claims improvements to wireless communications technology: directional, codebook-based data and probing transmissions; quality-metric-driven matrix selection and re-selection; channel-estimate-driven steering; and reduced control overhead—all yielding better range, reliability, and throughput at the physical layer of the wireless network.

105. The ‘870, ‘765, ‘401, and ‘096 Patents share a common specification, stem from a common application, and each claims priority to U.S. Provisional Application No. 60/980,036, filed October 15, 2007. On April 13, 2026, this Court, referring to these four patents collectively

as the “‘870 Family,” denied a motion for judgment on the pleadings challenging their eligibility under 35 U.S.C. § 101 in its entirety. *Velocity Commc’n Techs., LLC v. Cisco Sys., Inc.*, Case No. 5:25-cv-00098-RWS, Dkt. No. 124, at 2, 12, 18–19 (E.D. Tex. Apr. 13, 2026) (Schroeder, J.) (the “*Cisco* Order”). The Court held that the movant “ha[d] not met its burden to show that claim 1 of the ‘401 Patent is representative of all the claims in the ‘870 Family,” noting among other things that “the ‘870 and ‘765 Patents are focused on the different directional transmissions of the predefined spatial mapping matrices,” a concept “largely absent” from the ‘401 Patent. *Id.* at 3, 9. The Court nonetheless proceeded to analyze claim 1 of the ‘401 Patent at *Alice* Step One, and its analysis, which rests on the shared disclosure and the shared claimed advance over traditional beamforming, explains why the claims of the ‘870 Patent, too, are not directed to an abstract idea.

106. At *Alice* Step One, the Court held that “[c]laim 1 of the ‘401 Patent is not directed to an abstract idea.” *Id.* at 12; *see also id.* at 19. The Court rejected the contention that the claim is directed to the asserted abstract idea of “selecting among a set of pre-defined parameters by using feedback to make that selection,” and instead agreed that the claim “is directed to a specific improvement in the functioning of wireless network equipment.” *Id.* at 10. Examining the ‘870 Family’s common specification’s description of the deficiencies of traditional beamforming and the claimed solution, the Court held: “Such a specific solution is not an abstract idea.” *Id.* at 11.

107. The Court further held that the movant’s analogy to toggling among predefined audio equalizer settings was “an oversimplification of the ‘401 Patent,” and that “[b]y focusing purely on the feedback element, [the movant’s] argument is divorced from the limitations of the claims which also describe ‘storing, in a memory, predefined spatial mapping matrices useful for transmitting data packets to a receiver.’” *Id.* at 11-12. The Court concluded that the movant “failed

to prove by clear and convincing evidence that the claims of the ‘401 Patent are invalid under § 101,” and did “not reach *Alice* Step Two.” *Id.*

108. The ‘870 Patent family has been cited by 34 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘870 Patent family as relevant prior art:

- Electronics and Telecommunications Research Institute
- NEC Laboratories America, Inc.
- Qualcomm Incorporated
- Samsung Electronics Co., Ltd.
- Intel Corporation
- Ruckus Wireless LLC
- Newracom, Inc.
- Telefonaktiebolaget LM Ericsson
- Industrial Technology Research Institute
- AT&T Intellectual Property I, L.P.
- Amazon Technologies, Inc.

#### **U.S. PATENT NO. 8,644,765**

109. U.S. Patent No. 8,644,765 entitled, *Beamforming Using Predefined Spatial Mapping Matrices*, was filed on June 29, 2012. The ‘765 Patent is a continuation of U.S. Patent Application No. 12/251,834, which was filed on October 15, 2008 and issued as U.S. Patent No. 8,213,870, and also claims priority to U.S. Provisional Application No. 60/980,036, which was filed October 15, 2007. A true and correct copy of the ‘765 Patent is attached hereto as Exhibit 6.

110. The ‘765 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘765 Patent.

111. The technologies disclosed in the ‘765 Patent improve the reliability, range, and throughput of wireless Multiple Input Multiple Output (“MIMO”) communications systems by enabling directional transmissions using predefined, stored spatial mapping matrices, and by

selecting among those matrices for subsequent transmissions based on receiver-provided channel estimates with adaptive re-selection using measured error metrics. *See, e.g.*, Ex. 6, at col. 1:52-58.

112. The patent identifies concrete shortcomings in then-traditional beamforming. Conventional approaches utilized a sounding process with “an effective transmission range that is less than an effective transmission range of a beamformed channel;” they also delayed data and imposed overhead while the beamformed channel was being formed. *See* Ex. 6, at col. 2:65-3:12.

113. In short, beamforming technologies existing prior to the ‘765 Patent consumed control overhead, delayed transmission of data, and were range-limited.

114. The ‘765 Patent discloses a non-conventional solution: (i) iteratively transmit data packets using different predefined spatial mapping matrices stored in memory; (ii) receive channel estimates from the receiver in response; (iii) select the predefined matrix based on the received channel estimates for transmitting additional data; and (iv) selecting another matrix when a packet error rate for those additional packets exceeds a defined error-rate threshold. *See* Ex. 6, at col. 4:42-48; col. 7:14-17 (“one of the predefined spatial mapping matrices 124 may continue to be used until the steering matrix ( $Q_{\text{steer}}$ ) is calculated using [Channel State Information] CSI”); col. 3:23-29 (“When this threshold is exceeded for a particular spatial mapping matrix ( $Q$ ) that was used to form the beamformed channel, a different spatial mapping matrix ( $Q$ ) may be chosen from the codebook. In this way, the transmitter may hop between spatial mapping matrices until a matrix is found having an acceptable quality of reception.”).

115. This approach improves the functioning of the wireless system itself: (i) it extends effective range and improves reliability by applying directional matrices during probing and data phases; (ii) it reduces control overhead and latency by integrating selection into the data path; and (iii) it adapts dynamically using both receiver channel estimates and packet-error-rate thresholds.

116. As of the ‘765 Patent’s October 15, 2007 priority date, it was not routine or conventional to (a) iterate across finite stored, predefined spatial mapping matrices during data transmissions, (b) select the best matrix based on receiver-provided channel estimates, and (c) re-select based on packet error rate exceeding a defined threshold. The limitations of the ‘765 claims solve the identified technical problems in a non-conventional way—safeguarding range, reducing overhead, and improving throughput and robustness.

117. The specification teaches implementable codebook designs suitable for hardware and protocol contexts, including phasor vectors with angles equally spread over the unit circle and sub-matrices of unitary matrices (DFT/Hadamard) with  $Q^H Q = I$ , to realize directional spatial mappings and enable practical selection among codebook entries. *See* Ex. 6, at col. 7:40-55.

118. The inventions disclosed in the ‘765 Patent therefore improve the performance of beamformed wireless links in ways that were not routine or conventional as of the priority date. The inventions improve wireless network range, latency, throughput, and reliability.

119. The ‘870, ‘765, ‘401, and ‘096 Patents share a common specification, stem from a common application, and each claims priority to U.S. Provisional Application No. 60/980,036, filed October 15, 2007. On April 13, 2026, this Court, referring to these four patents collectively as the “‘870 Family,” denied a motion for judgment on the pleadings challenging their eligibility under 35 U.S.C. § 101 in its entirety. *Cisco* Order at 2. The Court held that the movant “ha[d] not met its burden to show that claim 1 of the ‘401 Patent is representative of all the claims in the ‘870 Family,” noting among other things that “the ‘870 and ‘765 Patents are focused on the different directional transmissions of the predefined spatial mapping matrices,” a concept “largely absent” from the ‘401 Patent. *Id.* at 3, 9. The Court nonetheless proceeded to analyze claim 1 of the ‘401 Patent at *Alice* Step One, and its analysis, which rests on the shared disclosure and the shared

claimed advance over traditional beamforming, explains why the claims of the ‘765 Patent, too, are not directed to an abstract idea.

120. At *Alice* Step One, the Court held that “[c]laim 1 of the ‘401 Patent is not directed to an abstract idea.” *Id.* at 12; *see also id.* at 19. The Court rejected the contention that the claim is directed to the asserted abstract idea of “selecting among a set of pre-defined parameters by using feedback to make that selection,” and instead agreed that the claim “is directed to a specific improvement in the functioning of wireless network equipment.” *Id.* at 10. Examining the ‘401 Patent specification’s (which is identical to the ‘765 Patent specification) description of the deficiencies of traditional beamforming and the claimed solution, the Court held: “Such a specific solution is not an abstract idea.” *Id.* at 11.

121. The Court further held that the movant’s analogy to toggling among predefined audio equalizer settings was “an oversimplification of the ‘401 Patent,” and that “[b]y focusing purely on the feedback element, [the movant’s] argument is divorced from the limitations of the claims which also describe ‘storing, in a memory, predefined spatial mapping matrices useful for transmitting data packets to a receiver.’” *Id.* at 11-12. The Court concluded that the movant “failed to prove by clear and convincing evidence that the claims of the ‘401 Patent are invalid under § 101,” and did “not reach *Alice* Step Two.” *Id.*

122. The ‘765 Patent family has been cited by 34 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘765 Patent family as relevant prior art:

- Amazon Technologies, Inc.
- Samsung Electronics Co., Ltd.
- Qualcomm Incorporated
- Intel Corporation
- Arris Enterprises LLC
- Panasonic Avionics Corporation

- NEC Laboratories America, Inc.
- Electronics and Telecommunications Research Institute
- Industrial Technology Research Institute
- AT&T Intellectual Property I, L.P.
- Newracom, Inc.

**U.S. PATENT NO. 9,083,401**

123. U.S. Patent No. 9,083,401 entitled, *Beamforming Using Predefined Spatial Mapping Matrices*, was filed on February 3, 2014. The ‘401 Patent is a continuation of U.S. Patent Application No. 13/539,131, which was filed on June 29, 2012 and issued as U.S. Patent No. 8,644,765, which is a continuation of U.S. Patent Application No. 12/251,834, which was filed on October 15, 2008 and issued as U.S. Patent No. 8,213,870. The ‘401 Patent also claims priority to U.S. Provisional Application No. 60/980,036, which was filed on October 15, 2007. A true and correct copy of the ‘401 Patent is attached hereto as Exhibit 7.

124. The ‘401 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘401 Patent.

125. The technologies disclosed in the ‘401 Patent improve the reliability, range, and throughput of wireless Multiple Input Multiple Output (“MIMO”) communications systems by enabling directional transmissions using predefined spatial mapping matrices, with the claimed methods and apparatus requiring both channel estimate-driven selection and reception quality metric-based re-selection. *See, e.g.*, Ex. 7, at col. 1:54-60; col. 2:3-6; col. 2:65-67; col. 3:23-29.

126. The patent identifies shortcomings of then-traditional beamforming. “[T]raditional sounding procedures delayed communication of data until the beamformed channel was formed ... Thus, traditional beamforming techniques were inefficient and caused additional overhead. . . .” Ex. 7, at col. 3:7–17.

127. In short, prior approaches consumed control overhead, delayed transmission of useful data, and were range-limited.

128. The '401 Patent discloses a non-conventional solution: (i) iteratively transmitting data packets using different predefined spatial mapping matrices from a stored codebook; (ii) receiving channel estimates from the receiver responsive to those transmissions; (iii) selecting the best predefined matrix based on the received channel estimates for use in subsequent transmissions; and (iv) continuing to adapt by selecting another predefined matrix whenever a measured reception quality metric (such as packet error rate or data rate) falls below a defined threshold.

129. This approach improves the functioning of the wireless network itself. It extends the network's effective range by applying directional matrices even during channel-probing phases, and it adapts dynamically using both receiver-provided channel estimates and quality-metric feedback.

130. As of the October 15, 2007 priority date, it was not routine or conventional to (a) iterate across a finite set of predefined spatial mapping matrices during data transmissions, (b) select among them based on CSI received in response to those transmissions, and (c) adaptively re-select based on reception quality metrics such as packet error rate or data rate thresholds.

131. The limitations of the '401 claims solve the identified technical problems in a non-conventional way: rather than relying solely on a control-heavy, non-directional sounding exchange and a single CSI-derived steering matrix, the invention requires both CSI-driven selection and quality-driven adaptation across stored directional matrices—thereby safeguarding range, reducing overhead, and improving throughput and reliability.

132. The specification further teaches implementable codebook designs enabling practice in real hardware and protocol contexts, including phasor vectors with angles equally spread on the unit circle, and sub-matrices of unitary matrices such as DFT and Hadamard matrices with the property  $Q^H Q = I$ . Ex. 7, at col. 7:43-51.

133. The inventions disclosed in the ‘401 Patent therefore improve the performance of beamformed wireless links in ways that were not routine or conventional as of the priority date: they integrate directional probing using predefined matrices, CSI-driven selection, and quality-metric-driven re-selection, while teaching concrete mathematical codebook designs that make the claims fully enabled and technological in character.

134. On April 13, 2026, this Court denied a motion for judgment on the pleadings challenging the patent eligibility of the ‘401 Patent under 35 U.S.C. § 101, holding at *Alice* Step One that “[c]laim 1 of the ‘401 Patent is not directed to an abstract idea.” *Cisco* Order at 12; *see also id.* at 19. The Court reviewed all of the claims of the ‘401 Patent and determined that claim 1 is representative of that patent, thus holding that all claims of the ‘401 Patent are not directed to an abstract idea under *Alice* Step One. *Id.* at 10.

135. The Court rejected the contention that claim 1 is directed to the asserted abstract idea of “selecting among a set of pre-defined parameters by using feedback to make that selection,” and instead agreed with Velocity “that claim 1 is directed to a specific improvement in the functioning of wireless network equipment.” *Id.* Examining the specification’s description of the deficiencies of traditional beamforming and the claimed solution, the Court held: “Such a specific solution is not an abstract idea.” *Id.* at 11 (citing *Packet Intel. LLC v. NetScout Sys., Inc.*, 965 F.3d 1299, 1309-10 (Fed. Cir. 2020)).

136. The Court further held that the movant’s analogy to toggling among predefined audio equalizer settings was “an oversimplification of the ‘401 Patent,” and that “[b]y focusing purely on the feedback element, [the movant’s] argument is divorced from the limitations of the claims which also describe ‘storing, in a memory, predefined spatial mapping matrices useful for transmitting data packets to a receiver.’” *Id.* at 11-12. The Court concluded that “[c]laim 1 of the ‘401 Patent is not directed to an abstract idea, and [the movant] has failed to prove by clear and convincing evidence that the claims of the ‘401 Patent are invalid under § 101,” and did “not reach *Alice* Step Two.” *Id.* at 12.

137. The ‘401 Patent family has been cited by 34 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘401 Patent family as relevant prior art:

- Amazon Technologies, Inc.
- Samsung Electronics Co., Ltd.
- Qualcomm Incorporated
- Intel Corporation
- Arris Enterprises LLC
- Panasonic Avionics Corporation
- NEC Laboratories America, Inc.
- Electronics and Telecommunications Research Institute
- Industrial Technology Research Institute
- AT&T Intellectual Property I, L.P.
- Newracom, Inc.

#### **U.S. PATENT NO. 10,200,096**

138. U.S. Patent No. 10,200,096 entitled, *Beamforming Using Predefined Spatial Mapping Matrices*, was filed on March 13, 2017. The ‘096 Patent is a continuation of U.S. Patent Application No. 12/251,834, which was filed on October 15, 2008 and issued as U.S. Patent No. 8,213,870, and also claims priority to U.S. Provisional Patent Application No. 60/980,036, which

was filed on October 15, 2007. The '096 Patent is subject to a 35 U.S.C. § 154(b) term extension of 11 days. A true and correct copy of the '096 Patent is attached hereto as Exhibit 8.

139. The '096 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the '096 Patent.

140. The technologies disclosed in the '096 Patent improve the reliability, range, and throughput of wireless Multiple Input Multiple Output ("MIMO") communications by enabling directional transmissions using predefined spatial mapping matrices, including specifically those selected from a codebook based on measured reception quality. *See, e.g.*, Ex. 8, at col. 1:58-64.

141. The patent further identifies a range/robustness problem inherent in sounding methodologies existing in 2007: the sounding packet could not reliably reach the receiver at ranges where beamformed data would work. As described in the '096 Patent, "the sounding packet was traditionally transmitted using a spatial mapping matrix (Q) that was not directional ... [so] the sounding packet may have an effective transmission range that is less than ... a beamformed channel," thereby limiting traditional techniques. Ex. 8, at col. 2:65-3:5.

142. In short, prior approaches consumed control overhead, delayed data, and limited the range of the wireless networking system.

143. The '096 Patent discloses a non-conventional solution: use a codebook of predefined spatial mapping matrices, measure a reception quality metric (*e.g.*, packet error rate or data rate) for each, and then select the matrix with the highest quality for subsequent transmissions. *See* Ex. 8, at col. 3:18-25 ("In an aspect, a spatial mapping matrix (Q) is selected from a codebook having a plurality of predefined spatial mapping matrices (Q) to form a beamformed channel to communicate data packets. The selection may be based on ... a number of errors encountered using a particular one of the spatial mapping matrices from the codebook when communicating

data.”); col. 5:58-60 (listing “different quality metrics” that may be used, including “data rate” and “packet error rate”); col. 6:14-17 (“The spatial mapping matrix that is optimal (e.g., best complies with the defined quality metric 208) may then be selected for use in communicating subsequent data packets.”); *see also id.*, at Claims 1, 3, 6, 7.

144. This approach improves the functioning of the wireless system itself: it (i) extends effective range by applying directional matrices, (ii) reduces control overhead and latency, and (iii) adapts in real time based on measured link quality.

145. As of the October 15, 2007 priority date, it was not routine or conventional to (a) transmit using predefined spatial mapping matrices from a codebook while sending data, or (b) iterate across matrices until each is used and compare measured reception quality to select the best.

146. The limitations of the claims of the ‘096 Patent solve the identified technical problems in a non-conventional way: rather than relying a control-heavy, non-directional sounding exchange, the invention moves channel selection into the data path, instrumenting quality, and choosing among directional codebook matrices—thereby safeguarding range, reducing overhead, and improving throughput and reliability.

147. The specification teaches implementable codebook designs (e.g., phasor vectors with angles spread on the unit circle; unitary  $Q$  with  $Q^H Q = I$ ) that enable a skilled artisan to practice the selection mechanism in concrete hardware and protocol contexts. *See* Ex. 8, at col. 7:56-67.

148. The inventions disclosed in the ‘096 Patent therefore improve the performance of beamformed wireless links in ways that were not routine or conventional as of the priority date: (i) they directionally probe and select using data packets, (ii) they optimize via measured reception quality across a finite, engineered codebook, and (iii) they eliminate or defer control-heavy

channel-training where appropriate—improving the range, latency, throughput, and robustness of the system.

149. The ‘870, ‘765, ‘401, and ‘096 Patents share a common specification, stem from a common application, and each claims priority to U.S. Provisional Application No. 60/980,036, filed October 15, 2007. On April 13, 2026, this Court, referring to these four patents collectively as the “‘870 Family,” denied a motion for judgment on the pleadings challenging their eligibility under 35 U.S.C. § 101 in its entirety. *Cisco* Order at 2. The Court held that the movant “ha[d] not met its burden to show that claim 1 of the ‘401 Patent is representative of all the claims in the ‘870 Family,” observing that “the ‘096 Patent includes receiver-side claims disclosing receiving data packets, determining the resulting reception quality, comparing the quality, and providing feedback to the transmitter”—claims that “are absent from the ‘870, ‘765, and ‘401 Patents, which focus on the transmitter side.” *Id.* at 9. The Court nonetheless proceeded to analyze claim 1 of the ‘401 Patent at *Alice* Step One, and its analysis, which rests on the shared disclosure and the shared claimed advance over traditional beamforming, explains why the claims of the ‘096 Patent, too, are not directed to an abstract idea.

150. At *Alice* Step One, the Court held that “[c]laim 1 of the ‘401 Patent is not directed to an abstract idea.” *Id.* at 12; *see also id.* at 19. The Court rejected the contention that the claim is directed to the asserted abstract idea of “selecting among a set of pre-defined parameters by using feedback to make that selection,” and instead agreed that the claim “is directed to a specific improvement in the functioning of wireless network equipment.” *Id.* at 10. Examining the ‘401 Patent specification’s (which is identical to the ‘096 Patent specification) description of the deficiencies of traditional beamforming and the claimed solution, the Court held: “Such a specific solution is not an abstract idea.” *Id.* at 11.

151. The Court further held that the movant’s analogy to toggling among predefined audio equalizer settings was “an oversimplification of the ‘401 Patent,” and that “[b]y focusing purely on the feedback element, [the movant’s] argument is divorced from the limitations of the claims which also describe ‘storing, in a memory, predefined spatial mapping matrices useful for transmitting data packets to a receiver.’” *Id.* at 11-12. The Court concluded that the movant “failed to prove by clear and convincing evidence that the claims of the ‘401 Patent are invalid under § 101,” and did “not reach *Alice* Step Two.” *Id.*

152. The ‘096 Patent family has been cited by 34 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘096 Patent family as relevant prior art:

- NEC Laboratories America, Inc.
- Electronics and Telecommunications Research Institute
- Qualcomm Incorporated
- Intel Corporation
- Ruckus Wireless LLC
- Newracom, Inc.
- Telefonaktiebolaget LM Ericsson
- Industrial Technology Research Institute
- AT&T Intellectual Property I, L.P.
- Amazon Technologies, Inc.

#### **U.S. PATENT NO. 9,444,577**

153. U.S. Patent No. 9,444,577 entitled, *Calibration Correction for Implicit Beamformer Using an Explicit Beamforming Technique in a Wireless MIMO Communication System*, was filed on February 26, 2014, and issued on September 13, 2016. The ‘577 Patent is a continuation-in-part of U.S. Patent Application No. 13/077,485, filed March 31, 2011, which issued as U.S. Patent No. 8,971,178, and claims priority to U.S. Provisional Patent Application Nos. 61/769,412, filed February 26, 2013, and 61/321,046, filed April 5, 2010. The ‘577 Patent is

subject to a 35 U.S.C. § 154(b) term extension of 61 days and is subject to a terminal disclaimer. A true and correct copy of the ‘577 Patent is attached hereto as Exhibit 9.

154. The ‘577 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘577 Patent.

155. The ‘577 Patent is directed to solving a technical problem in implicit beamforming systems used in wireless multiple-input, multiple-output (“MIMO”) communication systems. In implicit beamforming, a transmitting device calculates a steering matrix for transmissions on the forward channel by relying on the assumption that the forward channel can be estimated from measurements of the reverse channel, because “the forward channel can ideally be estimated as the matrix transpose of the reverse channel.” Ex. 9, at col. 4:20-21. As the ‘577 Patent explains, this assumption reduces the amount of signaling needed to perform beamforming because “the transmitter only needs to receive signals from the receiver to produce a steering matrix for the forward channel.” Ex. 9, at col. 4:22-24.

156. The ‘577 Patent identifies the shortcoming of prior art implicit beamforming: “radio frequency (RF) chain impairments in the form of gain/phase imbalances and coupling losses impair the ideal reciprocity between the forward and the reverse channels,” which the patent explains “render[s] the use of implicit beamforming . . . inferior in practice” absent correction. Ex. 9, at col. 4:32-42.

157. The ‘577 Patent discloses a non-conventional solution that combines implicit beamforming with an explicit, bidirectional calibration exchange: a first transceiver device and a second transceiver device each transmit a calibration signal requesting a “non-sounding packet” containing a description of the channel in the requesting direction, and the first transceiver device determines a device-specific correction matrix from the resulting forward- and reverse-channel

information, which it then applies when processing signals transmitted via the forward channel. This determination of a steering matrix using a sent calibration signal and a returned channel description is what the ‘577 Patent calls “explicit beamforming.” Ex. 9, at col. 4:10. The claimed correction matrix corrects for the very RF chain asymmetry that the patent identifies as degrading implicit beamforming, such that, as the patent explains, “the calibrated channels are semi-reciprocal.” Ex. 9, at col. 14:39.

158. The inventions disclosed in the ‘577 Patent provide improvements to the function of wireless MIMO networking hardware by enabling a transceiver device to correct for hardware-induced calibration error between its transmit and receive RF chains, improving the accuracy of implicit beamforming and, as a result, the throughput and reliability of the wireless link.

159. At the time of the invention, it was not routine or conventional to derive a device-specific correction matrix from a bidirectional, non-sounding-packet calibration exchange of the kind claimed in the ‘577 Patent, as opposed to relying on the uncorrected channel-reciprocity assumption underlying then-conventional implicit beamforming.

### **U.S. PATENT NO. 8,265,573**

160. U.S. Patent No. 8,265,573 entitled, *Wireless Subscriber Communication Unit and Method of Power Control with Back-Off Therefore*, was filed as U.S. Patent Application No. 12/096,550 on June 6, 2008. The ‘573 Patent claims priority as a national stage entry under 35 U.S.C. § 371 to International Patent Application No. PCT/EP05/56593, which was filed on December 7, 2005. The ‘573 Patent is subject to a 35 U.S.C. § 154(b) term extension of 1,117 days. A true and correct copy of the ‘573 Patent is attached hereto as Exhibit 10.

161. The ‘573 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘573 Patent.

162. The ‘573 Patent is directed to solving the problem of interference and inefficient spectrum utilization in increasingly crowded wireless communication environments. This problem leads to degraded signal quality, reduced data throughput, and lower overall network performance, particularly in dense deployments of wireless devices.

163. The technologies disclosed in the ‘573 Patent introduce methods and apparatuses for advanced power control in wireless transmitters. By adjusting and backing off output power in response to network conditions, such as interference from overlapping systems, the disclosed invention improves the overall speed and efficiency of data transmission.

164. At the time the inventions of the ‘573 Patent were conceived the field of wireless communications faced significant technical challenges in managing the power output of transmitters. Existing prior art systems faced problems ensuring the stability and speed of the power control loop in wireless systems.

165. At the time the ‘573 Patent inventions were developed, existing prior art systems had difficulty managing power control for high-power transmissions. The ‘573 Patent specification explains that “at the higher power amplifier output power levels . . . the closed loop system sometimes does not operate over sufficient bandwidth to track the reference signal rapidly enough.” Ex. 10, at 2:18-22.

166. The claims of the ‘573 Patent improve the functionality of the wireless communication unit and the wireless network in which it operates by solving a technical problem rooted in radio frequency engineering. The technologies disclosed in the ‘573 Patent provide specific methods and systems to prevent the “spectral degradation of the transmit signal” and “unfavorable interference at adjacent channels” that plagued prior art systems. Ex. 10, at col. 2:33-34, 2:54-55. This is a direct improvement to the functioning of the wireless device’s transmitter,

enabling it to transmit a cleaner signal. By controlling interference, the invention allows for more reliable and efficient data transmission.

167. The inventions disclosed in the ‘573 Patent improve the performance and reliability of wireless computer networking equipment by ensuring that transmit power is managed to control interference between concurrent transmissions. The technologies disclosed in the ‘573 Patent advanced the spectrum efficiency and spatial reuse capabilities as compared to prior art wireless networking equipment by enabling multiple devices to transmit simultaneously with reduced interference.

168. The ‘573 Patent is directed to a technological improvement in how wireless networks manage co-channel interference. The ‘573 Patent’s methods and systems for power back-off prior to the completion of a transmission burst are a technological solution directed to efficient spatial reuse and increasing overall network capacity.

169. The ‘573 Patent is directed to an improvement in wireless communication technology through implementing a closed-loop power control function that allows a wireless device to transmit simultaneously in an environment with nearby wireless transmitters.

170. The ‘573 Patent family has been cited by several United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘573 Patent family as relevant prior art:

- Panasonic Holdings Corporation
- ViaSat, Inc.
- Rockwell Collins, Inc.
- Chi Mei Communication Systems, Inc.
- Nordic Semiconductor ASA

**U.S. PATENT NO. 9,596,648**

171. U.S. Patent No. 9,596,648 entitled, *Unified Beacon Format*, was filed on June 28, 2013. The ‘648 Patent claims priority to U.S. Provisional Patent Application Nos. 61/666,156; 61/680,628; and 61/700,148, which were filed on June 29, 2012; August 7, 2012; and September 12, 2012, respectively. A true and correct copy of the ‘648 Patent is attached hereto as Exhibit 11.

172. The ‘648 Patent has been in full force and effect since its issuance. Velocity owns by assignment the entire right, title, and interest in and to the ‘648 Patent.

173. The ‘648 Patent is directed to solving the problem of inefficient broadcasting of network information in wireless networks. This inefficiency arises when beacon frames, which must be sent periodically, become large and consume excessive airtime, particularly in complex networks. This leads to poor utilization of the wireless medium, reduced overall data throughput, and increased power consumption for listening devices.

174. At the time of the invention of the ‘648 Patent, existing systems faced technical challenges associated with beacon transmissions in wireless local area networks. One difficulty that existing prior art systems had was the inefficiency of using a single, lengthy beacon format for all network management purposes. Existing prior art systems faced problems with significant power drain on battery-operated devices, which had to awaken fully and process large data frames even when only minimal synchronization information was needed.

175. At the time the ‘648 Patent inventions were conceived, existing systems had difficulty managing the high power consumption in processing control frames defined by existing wireless local area network (WLAN) standards. The ‘648 Patent identifies this technical problem, explaining that “the current IEEE 802.11 control frame formats may require STAs [stations] and

Aps [access points] to conduct unnecessary processing of packets, or portions of packets, resulting in higher power consumption.” Ex. 11, at col. 3:65-4:1.

176. Existing systems for transmitting network information at the time the ‘648 Patent inventions were developed faced limitations including the technical complexity and inefficiency of generating and parsing multiple, structurally distinct types of beacon frames.

177. The ‘648 Patent discloses systems and methods to efficiently manage and transmit network information in wireless communication systems. The ‘648 Patent teachings include determining whether to send a concise “short” beacon or a comprehensive “full” beacon, and generating the beacon frame in a unified format that includes a specific indication of which type is being sent. By implementing this technique, the ‘648 Patent improves the efficiency of beacon transmissions, particularly in complex environments where an access point manages multiple networks. The inventions disclosed in the ‘648 Patent provide improvements to the function of wireless networking hardware, such as access points and client devices.

178. The ‘648 Patent is directed to a technological improvement in how wireless networks broadcast information. The ‘648 Patent’s unified beacon format, which allows for distinct subformats for multiple types of beacons, is a technological method that improves the efficiency of wireless transmissions.

179. The ‘648 Patent improves computer networking technology through determining the necessary amount of information to send, generating a beacon frame and including an indicator of that structure within the frame. The claimed methods and systems disclosed in the ‘648 Patent generate and transmit beacon frames that can dynamically vary in content while maintaining a consistent base format, addressing the technological challenge of broadcasting of network information in wireless networks.

180. The inventions disclosed in the ‘648 Patent provide improvements to the function of the hardware in a computer network by efficiently managing how wireless network information is broadcast. This is particularly beneficial in complex wireless environments where an Access Point may manage multiple networks—*i.e.*, Basic Service Set Identifiers (BSSIDs)—and must advertise them without consuming excessive airtime. By reducing the overhead from beacon transmissions, the ‘648 Patent inventions improve network throughput and performance.

181. The ‘648 Patent family has been cited by 24 United States and international patents and patent applications as relevant prior art. Specifically, patents issued to the following companies and research institutions have cited the ‘648 Patent family as relevant prior art:

- Huawei Technologies Co., Ltd.
- Intel Corporation
- Qualcomm Incorporated
- Texas Instruments Incorporated
- Mediatek Inc.
- ZTE Corporation
- Singapore Agency for Science, Technology, and Research
- International Business Machines Corporation
- Ericsson Sweden Ltd.
- The Wireless Registry, Inc.
- Sling Media, LLC

**COUNT I**  
**INFRINGEMENT OF U.S. PATENT NO. 8,675,570**

182. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

183. Arcadyan makes, sells, offers to sell, imports, and/or uses all devices that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000

Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘570 Accused Product(s)’”).

184. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘570 Accused Products in the United States.

185. One or more Arcadyan subsidiaries and/or affiliates use the ‘570 Accused Products in regular business operations.

186. Arcadyan has directly infringed and continues to directly infringe the ‘570 Patent by, among other things, making, using, offering for sale, and/or selling the ‘570 Accused Products. The functionality recited in the ‘570 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘570 Accused Products infringe at least claims 1, 2, 3, 4, 5, 6, 9, 12, and 13 of the ‘570 Patent can be found in the chart attached hereto as Exhibit 12.

187. The ‘570 Accused Products are available to businesses and individuals throughout the United States.

188. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘570 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘570 Patent, including at least claims 1, 2, 3, 4, 5, 6, 9, 12, and 13 pursuant to 35 U.S.C. § 271(a). Exhibit 12 applies each limitation of claims 1, 2, 3, 4, 5, 6, 9, 12, and 13 of the ‘570 Patent to the ‘570 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘570 Accused Products obtained

through discovery. This chart is not intended to limit Velocity's right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the '570 Patent. Exhibit 12 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 12 that is mapped to the '570 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

189. Arcadyan also indirectly infringes the '570 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the '570 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

190. Arcadyan has had knowledge of the '570 Patent since at least shortly after March 4, 2024, when ZTE submitted a Letter of Assurance to IEEE notifying IEEE and industry participants that ZTE developed patented technologies incorporated into the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Arcadyan deliberately avoided confirming their existence and ownership.

191. Arcadyan was further on notice of the '570 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

192. Alternatively, Arcadyan has had knowledge of the '570 Patent and its infringement thereof since no later than the filing and service of this Complaint.

193. Arcadyan intended to induce patent infringement by third-party customers and users of the '570 Accused Products and had knowledge that the inducing acts would cause

infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘570 Accused Products would infringe the ‘570 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘570 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘570 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘570 Patent, including at least claims 1, 2, 3, 4, 5, 6, 9, 12, and 13, and Arcadyan further advertises the ‘570 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘570 Patent. On information and belief, Arcadyan advertises all of the ‘570 Accused Products as complying with the 802.11ax Standard.<sup>1</sup> By providing instruction and training to customers and end-users on how to use the ‘570 Accused Products in a manner that directly infringes one or more claims of the ‘570 Patent, including at least claims 1, 2, 3, 4, 5, 6, 9, 12, and 13, Arcadyan specifically intended to induce infringement of the ‘570 Patent. Arcadyan engaged in such inducement to promote the

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<sup>1</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

sales of the ‘570 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘570 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘570 Accused Products to use the ‘570 Accused Products in their ordinary and customary way to infringe the ‘570 Patent, knowing that such use constitutes infringement of the ‘570 Patent.

194. Arcadyan also indirectly infringes the ‘570 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘570 Accused Products and causing the ‘570 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘570 Accused Products, such that the ‘570 Patent is directly infringed. The accused components within the ‘570 Accused Products are material to the invention of the ‘570 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘570 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘570 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘570 Patent.

195. As described above, Arcadyan knew that ZTE was the company responsible for developing technologies incorporated into the 802.11ax Standard and that ZTE patented those pioneering technologies since at least March 4, 2024, when ZTE submitted a Letter of Assurance to IEEE. The ‘570 Patent is a patent originally assigned to ZTE that resulted from ZTE’s development of OFDMA technology incorporated into the 802.11ax Standard. Arcadyan has also

known that Velocity was the owner by assignment of the ‘570 Patent no later than the filing and service of this Complaint.

196. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

197. Arcadyan is utilizing the technology claimed in the ‘570 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘570 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

198. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘570 Patent.

199. As a result of Arcadyan’s infringement of the ‘570 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT II**  
**INFRINGEMENT OF U.S. PATENT NO. 8,260,213**

200. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

201. Arcadyan makes, sells, offers to sell, imports, and/or uses all devices that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the

following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘213 Accused Product(s)’”).

202. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘213 Accused Products in the United States.

203. One or more Arcadyan subsidiaries and/or affiliates use the ‘213 Accused Products in regular business operations.

204. Arcadyan has directly infringed and continues to directly infringe the ‘213 Patent by, among other things, making, using, offering for sale, and/or selling the ‘213 Accused Products. The functionality recited in the ‘213 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘213 Accused Products infringe at least claims 1, 2, 3, 4, 6, 8, 9, 10, 12, 13, 14, 16, and 17 of the ‘213 Patent can be found in the chart attached hereto as Exhibit 13.

205. The ‘213 Accused Products are available to businesses and individuals throughout the United States.

206. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘213 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘213 Patent, including at least claims 1, 2, 3, 4, 6, 8,

9, 10, 12, 13, 14, 16, and 17 pursuant to 35 U.S.C. § 271(a). Exhibit 13 applies each limitation of claims 1, 2, 3, 4, 6, 8, 9, 10, 12, 13, 14, 16, and 17 of the ‘213 Patent to the ‘213 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘213 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘213 Patent. Exhibit 13 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 13 that is mapped to the ‘213 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

207. Arcadyan also indirectly infringes the ‘213 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘213 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

208. Arcadyan has had knowledge of the ‘213 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

209. Arcadyan was further on notice of the ‘213 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

210. Alternatively, Arcadyan has had knowledge of the ‘213 Patent and its infringement thereof since no later than the filing and service of this Complaint.

211. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘213 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘213 Accused Products would infringe the ‘213 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘213 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘213 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘213 Patent, including at least claims 1, 2, 3, 4, 6, 8, 9, 10, 12, 13, 14, 16, and 17, and Arcadyan further advertises the ‘213 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘213 Patent. On information and belief, Arcadyan advertises all of the ‘213 Accused Products as complying with the 802.11ax Standard.<sup>2</sup> By providing instruction and training to customers

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<sup>2</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment

and end-users on how to use the ‘213 Accused Products in a manner that directly infringes one or more claims of the ‘213 Patent, including at least claims 1, 2, 3, 4, 6, 8, 9, 10, 12, 13, 14, 16, and 17, Arcadyan specifically intended to induce infringement of the ‘213 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘213 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘213 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘213 Accused Products to use the ‘213 Accused Products in their ordinary and customary way to infringe the ‘213 Patent, knowing that such use constitutes infringement of the ‘213 Patent.

212. Arcadyan also indirectly infringes the ‘213 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘213 Accused Products and causing the ‘213 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘213 Accused Products, such that the ‘213 Patent is directly infringed. The accused components within the ‘213 Accused Products are material to the invention of the ‘213 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘213 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘213 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘213 Patent.

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Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

213. As described above, Arcadyan knew that NXP possessed patents, including the ‘213 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the ‘213 Patent no later than the filing and service of this Complaint.

214. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

215. Arcadyan is utilizing the technology claimed in the ‘213 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘213 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

216. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘213 Patent.

217. As a result of Arcadyan’s infringement of the ‘213 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT III**  
**INFRINGEMENT OF U.S. PATENT NO. 8,238,832**

218. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

219. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points<sup>3</sup> (“AP”) that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘832 Accused Product(s)’”).

220. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘832 Accused Products in the United States.

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<sup>3</sup> An IEEE 802.11ax Access Point (AP) (802.11ax § 3.2) is defined by the 802.11ax Standard as a High Efficiency (HE) station (STA) (§ 4.3.15a) that establishes and centrally coordinates Basic Service Set (BSS) infrastructure (§§ 3.2, 26.17.1). Mandatory Physical Layer (PHY) capabilities of an 802.11ax Access Point include Downlink/Uplink Orthogonal Frequency Division Multiple Access (OFDMA) and Downlink Multi-User Multiple Input, Multiple Output (DL MU-MIMO) for APs supporting 4 or more spatial streams over the entire PPDU bandwidth. Such APs shall also set the MU Beamformer subfield to 1 (§§ 4.3.15a, 27.1.1, 26.7.2). When operating in the 6 GHz band, APs shall support at least 80 MHz channel width, enable spectrum management (dot11SpectrumManagementRequired = true), and enable FILS Discovery frame omission (dot11FILSOmitReplicateProbeResponses = true) (§ 26.17.2.1). Mandatory Medium Access Control (MAC) capabilities of an 802.11ax Access Point include HE control field operations (dot11HEControlFieldOptionImplemented = true) (§ 10.8), OMI responder (dot11OMIOptionImplemented = true) (§§ 4.3.15a, 26.9.1), and individual TWT responder functionality (§§ 4.3.15a, 26.8.1).

221. One or more Arcadyan subsidiaries and/or affiliates use the ‘832 Accused Products in regular business operations.

222. Arcadyan has directly infringed and continues to directly infringe the ‘832 Patent by, among other things, making, using, offering for sale, and/or selling the ‘832 Accused Products. The functionality recited in the ‘832 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘832 Accused Products infringe at least claims 18, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 34, and 35 of the ‘832 Patent can be found in the chart attached hereto as Exhibit 14.

223. The ‘832 Accused Products are available to businesses and individuals throughout the United States.

224. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘832 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘832 Patent, including at least claims 18, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 34, and 35 pursuant to 35 U.S.C. § 271(a). Exhibit 14 applies each limitation of claims 18, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 34, and 35 of the ‘832 Patent to the ‘832 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘832 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘832 Patent. Exhibit 14 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 14 that is mapped to the ‘832 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

225. Arcadyan also indirectly infringes the ‘832 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘832 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

226. Arcadyan has had knowledge of the ‘832 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

227. Arcadyan was further on notice of the ‘832 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

228. Alternatively, Arcadyan has had knowledge of the ‘832 Patent and its infringement thereof since no later than the filing and service of this Complaint.

229. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘832 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘832 Accused Products would infringe the ‘832 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘832 Patent and with the knowledge that the induced acts would constitute infringement. For

example, Arcadyan provides the ‘832 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘832 Patent, including at least claims 18, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 34, and 35, and Arcadyan further advertises the ‘832 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘832 Patent. On information and belief, Arcadyan advertises all of the ‘832 Accused Products as complying with the 802.11ax Standard.<sup>4</sup> By providing instruction and training to customers and end-users on how to use the ‘832 Accused Products in a manner that directly infringes one or more claims of the ‘832 Patent, including at least claims 18, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 34, and 35, Arcadyan specifically intended to induce infringement of the ‘832 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘832 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘832 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘832 Accused Products to use the ‘832

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<sup>4</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

Accused Products in their ordinary and customary way to infringe the ‘832 Patent, knowing that such use constitutes infringement of the ‘832 Patent.

230. Arcadyan also indirectly infringes the ‘832 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘832 Accused Products and causing the ‘832 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘832 Accused Products, such that the ‘832 Patent is directly infringed. The accused components within the ‘832 Accused Products are material to the invention of the ‘832 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘832 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘832 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘832 Patent.

231. As described above, Arcadyan knew that NXP possessed patents, including the ‘832 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the ‘832 Patent no later than the filing and service of this Complaint.

232. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement

of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

233. Arcadyan is utilizing the technology claimed in the ‘832 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘832 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

234. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘832 Patent.

235. As a result of Arcadyan’s infringement of the ‘832 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT IV**  
**INFRINGEMENT OF U.S. PATENT NO. 8,270,343**

236. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

237. Arcadyan makes, sells, offers to sell, imports, and/or uses all devices that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone

Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘343 Accused Product(s)’”).

238. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘343 Accused Products in the United States.

239. One or more Arcadyan subsidiaries and/or affiliates use the ‘343 Accused Products in regular business operations.

240. Arcadyan has directly infringed and continues to directly infringe the ‘343 Patent by, among other things, making, using, offering for sale, and/or selling the ‘343 Accused Products. The functionality recited in the ‘343 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘343 Accused Products infringe at least claims 1, 3, 7, 10, 11, 13, and 15 of the ‘343 Patent can be found in the chart attached hereto as Exhibit 15.

241. The ‘343 Accused Products are available to businesses and individuals throughout the United States.

242. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘343 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘343 Patent, including at least claims 1, 3, 7, 10, 11, 13, and 15 pursuant to 35 U.S.C. § 271(a). Exhibit 15 applies each limitation of claims 1, 3, 7, 10, 11, 13, and 15 of the ‘343 Patent to the ‘343 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘343 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘343 Patent. Exhibit 15 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 15

that is mapped to the ‘343 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

243. Arcadyan also indirectly infringes the ‘343 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘343 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

244. Arcadyan has had knowledge of the ‘343 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

245. Arcadyan was further on notice of the ‘343 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

246. Alternatively, Arcadyan has had knowledge of the ‘343 Patent and its infringement thereof since no later than the filing and service of this Complaint.

247. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘343 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘343 Accused Products would infringe the ‘343 Patent. Arcadyan performed the acts that

constitute induced infringement, and would induce actual infringement, with knowledge of the ‘343 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘343 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘343 Patent, including at least claims 1, 3, 7, 10, 11, 13, and 15, and Arcadyan further advertises the ‘343 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘343 Patent. On information and belief, Arcadyan advertises all of the ‘343 Accused Products as complying with the 802.11ax Standard.<sup>5</sup> By providing instruction and training to customers and end-users on how to use the ‘343 Accused Products in a manner that directly infringes one or more claims of the ‘343 Patent, including at least claims 1, 3, 7, 10, 11, 13, and 15, Arcadyan specifically intended to induce infringement of the ‘343 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘343 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘343 Patent. Accordingly, Arcadyan has induced and continues to induce users of the

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<sup>5</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

‘343 Accused Products to use the ‘343 Accused Products in their ordinary and customary way to infringe the ‘343 Patent, knowing that such use constitutes infringement of the ‘343 Patent.

248. Arcadyan also indirectly infringes the ‘343 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘343 Accused Products and causing the ‘343 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘343 Accused Products, such that the ‘343 Patent is directly infringed. The accused components within the ‘343 Accused Products are material to the invention of the ‘343 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘343 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘343 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘343 Patent.

249. As described above, Arcadyan knew that NXP possessed patents, including the ‘343 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the ‘343 Patent no later than the filing and service of this Complaint.

250. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement

of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

251. Arcadyan is utilizing the technology claimed in the ‘343 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘343 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

252. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘343 Patent.

253. As a result of Arcadyan’s infringement of the ‘343 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT V**  
**INFRINGEMENT OF U.S. PATENT NO. 8,213,870**

254. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

255. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points (“AP”) that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone

Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘870 Accused Product(s)’”).

256. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘870 Accused Products in the United States.

257. One or more Arcadyan subsidiaries and/or affiliates use the ‘870 Accused Products in regular business operations.

258. Arcadyan has directly infringed and continues to directly infringe the ‘870 Patent by, among other things, making, using, offering for sale, and/or selling the ‘870 Accused Products. The functionality recited in the ‘870 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘870 Accused Products infringe at least claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, and 20 of the ‘870 Patent can be found in the chart attached hereto as Exhibit 16.

259. The ‘870 Accused Products are available to businesses and individuals throughout the United States.

260. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘870 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘870 Patent, including at least claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, and 20 pursuant to 35 U.S.C. § 271(a). Exhibit 16 applies each limitation of claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, and 20 of the ‘870 Patent to the ‘870 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘870 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan

infringe the identified claim or any other claims of the ‘870 Patent. Exhibit 16 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 16 that is mapped to the ‘870 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

261. Arcadyan also indirectly infringes the ‘870 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘870 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

262. Arcadyan has had knowledge of the ‘870 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

263. Arcadyan was further on notice of the ‘870 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

264. Alternatively, Arcadyan has had knowledge of the ‘870 Patent and its infringement thereof since no later than the filing and service of this Complaint.

265. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘870 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause

infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘870 Accused Products would infringe the ‘870 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘870 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘870 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘870 Patent, including at least claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, and 20, and Arcadyan further advertises the ‘870 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘870 Patent. On information and belief, Arcadyan advertises all of the ‘870 Accused Products as complying with the 802.11ax Standard.<sup>6</sup> By providing instruction and training to customers and end-users on how to use the ‘870 Accused Products in a manner that directly infringes one or more claims of the ‘870 Patent, including at least claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, and 20, Arcadyan specifically intended to induce infringement of the ‘870 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘870 Accused

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<sup>6</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘870 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘870 Accused Products to use the ‘870 Accused Products in their ordinary and customary way to infringe the ‘870 Patent, knowing that such use constitutes infringement of the ‘870 Patent.

266. Arcadyan also indirectly infringes the ‘870 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘870 Accused Products and causing the ‘870 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘870 Accused Products, such that the ‘870 Patent is directly infringed. The accused components within the ‘870 Accused Products are material to the invention of the ‘870 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘870 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘870 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘870 Patent.

267. As described above, Arcadyan knew that NXP possessed patents, including the ‘870 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the ‘870 Patent no later than the filing and service of this Complaint.

268. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan's 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

269. Arcadyan is utilizing the technology claimed in the '870 Patent without paying a reasonable royalty. Arcadyan is thus infringing the '870 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

270. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '870 Patent.

271. As a result of Arcadyan's infringement of the '870 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan's infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT VI**  
**INFRINGEMENT OF U.S. PATENT NO. 8,644,765**

272. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

273. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points ("AP") that practice the IEEE 802.11ax (Wi-Fi 6) standard ("802.11ax Standard"), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1

AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘765 Accused Product(s)’”).

274. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘765 Accused Products in the United States.

275. One or more Arcadyan subsidiaries and/or affiliates use the ‘765 Accused Products in regular business operations.

276. Arcadyan has directly infringed and continues to directly infringe the ‘765 Patent by, among other things, making, using, offering for sale, and/or selling the ‘765 Accused Products. The functionality recited in the ‘765 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘765 Accused Products infringe at least claims 1, 2, 3, 4, 7, 8, 9, 10, 12, 14, 15, 16, and 17 of the ‘765 Patent can be found in the chart attached hereto as Exhibit 17.

277. The ‘765 Accused Products are available to businesses and individuals throughout the United States.

278. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘765 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘765 Patent, including at least claims 1, 2, 3, 4, 7, 8, 9, 10, 12, 14, 15, 16, and 17 pursuant to 35 U.S.C. § 271(a). Exhibit 17 applies each limitation of claims 1, 2, 3, 4, 7, 8, 9, 10, 12, 14, 15, 16, and 17 of the ‘765 Patent to the ‘765 Accused Products.

Velocity provides this infringement analysis without the benefit of information about the ‘765 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘765 Patent. Exhibit 17 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 17 that is mapped to the ‘765 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

279. Arcadyan also indirectly infringes the ‘765 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘765 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

280. Arcadyan has had knowledge of the ‘765 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

281. Arcadyan was further on notice of the ‘765 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

282. Alternatively, Arcadyan has had knowledge of the ‘765 Patent and its infringement thereof since no later than the filing and service of this Complaint.

283. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘765 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘765 Accused Products would infringe the ‘765 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘765 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘765 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘765 Patent, including at least claims 1, 2, 3, 4, 7, 8, 9, 10, 12, 14, 15, 16, and 17, and Arcadyan further advertises the ‘765 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘765 Patent. On information and belief, Arcadyan advertises all of the ‘765 Accused Products as complying with the 802.11ax Standard.<sup>7</sup> By providing instruction and training to customers and end-users on how to use the ‘765 Accused Products in a manner that directly infringes one or

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<sup>7</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

more claims of the ‘765 Patent, including at least claims 1, 2, 3, 4, 7, 8, 9, 10, 12, 14, 15, 16, and 17, Arcadyan specifically intended to induce infringement of the ‘765 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘765 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘765 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘765 Accused Products to use the ‘765 Accused Products in their ordinary and customary way to infringe the ‘765 Patent, knowing that such use constitutes infringement of the ‘765 Patent.

284. Arcadyan also indirectly infringes the ‘765 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘765 Accused Products and causing the ‘765 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘765 Accused Products, such that the ‘765 Patent is directly infringed. The accused components within the ‘765 Accused Products are material to the invention of the ‘765 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘765 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘765 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘765 Patent.

285. As described above, Arcadyan knew that NXP possessed patents, including the ‘765 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard.

Arcadyan has also known that Velocity was the owner by assignment of the ‘765 Patent no later than the filing and service of this Complaint.

286. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

287. Arcadyan is utilizing the technology claimed in the ‘765 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘765 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

288. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘765 Patent.

289. As a result of Arcadyan’s infringement of the ‘765 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT VII**  
**INFRINGEMENT OF U.S. PATENT NO. 9,083,401**

290. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

291. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points (“AP”) that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not

limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘401 Accused Product(s)’”).

292. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘401 Accused Products in the United States.

293. One or more Arcadyan subsidiaries and/or affiliates use the ‘401 Accused Products in regular business operations.

294. Arcadyan has directly infringed and continues to directly infringe the ‘401 Patent by, among other things, making, using, offering for sale, and/or selling the ‘401 Accused Products. The functionality recited in the ‘401 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘401 Accused Products infringe at least claims 1, 2, 4, 7, 8, 9, 15, 16, 17, and 18 of the ‘401 Patent can be found in the chart attached hereto as Exhibit 18.

295. The ‘401 Accused Products are available to businesses and individuals throughout the United States.

296. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘401 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘401 Patent, including at least claims 1, 2, 4, 7, 8, 9, 15, 16, 17, and 18 pursuant to 35 U.S.C. § 271(a). Exhibit 18 applies each limitation of claims 1,

2, 4, 7, 8, 9, 15, 16, 17, and 18 of the ‘401 Patent to the ‘401 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘401 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘401 Patent. Exhibit 18 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 18 that is mapped to the ‘401 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

297. Arcadyan also indirectly infringes the ‘401 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘401 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

298. Arcadyan has had knowledge of the ‘401 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

299. Arcadyan was further on notice of the ‘401 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

300. Alternatively, Arcadyan has had knowledge of the ‘401 Patent and its infringement thereof since no later than the filing and service of this Complaint.

301. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘401 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘401 Accused Products would infringe the ‘401 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘401 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘401 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘401 Patent, including at least claims 1, 2, 4, 7, 8, 9, 15, 16, 17, and 18, and Arcadyan further advertises the ‘401 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘401 Patent. On information and belief, Arcadyan advertises all of the ‘401 Accused Products as complying with the 802.11ax Standard.<sup>8</sup> By providing instruction and training to customers and

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<sup>8</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment

end-users on how to use the ‘401 Accused Products in a manner that directly infringes one or more claims of the ‘401 Patent, including at least claims 1, 2, 4, 7, 8, 9, 15, 16, 17, and 18, Arcadyan specifically intended to induce infringement of the ‘401 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘401 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘401 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘401 Accused Products to use the ‘401 Accused Products in their ordinary and customary way to infringe the ‘401 Patent, knowing that such use constitutes infringement of the ‘401 Patent.

302. Arcadyan also indirectly infringes the ‘401 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘401 Accused Products and causing the ‘401 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘401 Accused Products, such that the ‘401 Patent is directly infringed. The accused components within the ‘401 Accused Products are material to the invention of the ‘401 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘401 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘401 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘401 Patent.

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Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

303. As described above, Arcadyan knew that NXP possessed patents, including the ‘401 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the ‘401 Patent no later than the filing and service of this Complaint.

304. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

305. Arcadyan is utilizing the technology claimed in the ‘401 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘401 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

306. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘401 Patent.

307. As a result of Arcadyan’s infringement of the ‘401 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT VIII**  
**INFRINGEMENT OF U.S. PATENT NO. 10,200,096**

308. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

309. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points (“AP”) that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘096 Accused Product(s)”).

310. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘096 Accused Products in the United States.

311. One or more Arcadyan subsidiaries and/or affiliates use the ‘096 Accused Products in regular business operations.

312. Arcadyan has directly infringed and continues to directly infringe the ‘096 Patent by, among other things, making, using, offering for sale, and/or selling the ‘096 Accused Products. The functionality recited in the ‘096 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘096 Accused Products infringe at least claims 1, 2, 3, 5, 6, and 7 of the ‘096 Patent can be found in the chart attached hereto as Exhibit 19.

313. The ‘096 Accused Products are available to businesses and individuals throughout the United States.

314. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the '096 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the '096 Patent, including at least claims 1, 2, 3, 5, 6, and 7 pursuant to 35 U.S.C. § 271(a). Exhibit 19 applies each limitation of claims 1, 2, 3, 5, 6, and 7 of the '096 Patent to the '096 Accused Products. Velocity provides this infringement analysis without the benefit of information about the '096 Accused Products obtained through discovery. This chart is not intended to limit Velocity's right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the '096 Patent. Exhibit 19 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 19 that is mapped to the '096 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

315. Arcadyan also indirectly infringes the '096 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the '096 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

316. Arcadyan has had knowledge of the '096 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

317. Arcadyan was further on notice of the ‘096 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

318. Alternatively, Arcadyan has had knowledge of the ‘096 Patent and its infringement thereof since no later than the filing and service of this Complaint.

319. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘096 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘096 Accused Products would infringe the ‘096 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘096 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘096 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘096 Patent, including at least claims 1, 2, 3, 5, 6, and 7, and Arcadyan further advertises the ‘096 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘096 Patent. On information and belief, Arcadyan advertises all of the ‘096 Accused Products as complying with the 802.11ax Standard.<sup>9</sup> By providing instruction and training to customers and end-users on how

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<sup>9</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment

to use the ‘096 Accused Products in a manner that directly infringes one or more claims of the ‘096 Patent, including at least claims 1, 2, 3, 5, 6, and 7, Arcadyan specifically intended to induce infringement of the ‘096 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘096 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘096 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘096 Accused Products to use the ‘096 Accused Products in their ordinary and customary way to infringe the ‘096 Patent, knowing that such use constitutes infringement of the ‘096 Patent.

320. Arcadyan also indirectly infringes the ‘096 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘096 Accused Products and causing the ‘096 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘096 Accused Products, such that the ‘096 Patent is directly infringed. The accused components within the ‘096 Accused Products are material to the invention of the ‘096 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘096 Patent. Arcadyan has performed and continues to perform these affirmative acts with

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Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

knowledge of the '096 Patent and with intent, or willful blindness, that they cause the direct infringement of the '096 Patent.

321. As described above, Arcadyan knew that NXP possessed patents, including the '096 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the '096 Patent no later than the filing and service of this Complaint.

322. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan's 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

323. Arcadyan is utilizing the technology claimed in the '096 Patent without paying a reasonable royalty. Arcadyan is thus infringing the '096 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

324. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '096 Patent.

325. As a result of Arcadyan's infringement of the '096 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan's infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT IX**  
**INFRINGEMENT OF U.S. PATENT NO. 9,444,577**

326. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

327. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points (“AP”) that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘577 Accused Product(s)’”).

328. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘577 Accused Products in the United States.

329. One or more Arcadyan subsidiaries and/or affiliates use the ‘577 Accused Products in regular business operations.

330. Arcadyan has directly infringed and continues to directly infringe the ‘577 Patent by, among other things, making, using, offering for sale, and/or selling the ‘577 Accused Products. The functionality recited in the ‘577 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘577 Accused Products infringe at least claims 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 18, 19, 20, 22, 24, and 25 of the ‘577 Patent can be found in the chart attached hereto as Exhibit 20.

331. The ‘577 Accused Products are available to businesses and individuals throughout the United States.

332. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘577 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘577 Patent, including at least claims 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 18, 19, 20, 22, 24, and 25 pursuant to 35 U.S.C. § 271(a). Exhibit 20 applies each limitation of claims 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 18, 19, 20, 22, 24, and 25 of the ‘577 Patent to the ‘577 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘577 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘577 Patent. Exhibit 20 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 20 that is mapped to the ‘577 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

333. Arcadyan also indirectly infringes the ‘577 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘577 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

334. Arcadyan has had knowledge of the ‘577 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that

Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

335. Alternatively, Arcadyan has had knowledge of the ‘577 Patent and its infringement thereof since no later than the filing and service of this Complaint.

336. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘577 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘577 Accused Products would infringe the ‘577 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘577 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘577 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘577 Patent, including at least claims 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 18, 19, 20, 22, 24, and 25, and Arcadyan further advertises the ‘577 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘577 Patent. On information and belief, Arcadyan advertises all of the ‘577 Accused Products as complying with the 802.11ax Standard.<sup>10</sup> By providing instruction and

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<sup>10</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment

training to customers and end-users on how to use the ‘577 Accused Products in a manner that directly infringes one or more claims of the ‘577 Patent, including at least claims 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 18, 19, 20, 22, 24, and 25, Arcadyan specifically intended to induce infringement of the ‘577 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘577 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘577 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘577 Accused Products to use the ‘577 Accused Products in their ordinary and customary way to infringe the ‘577 Patent, knowing that such use constitutes infringement of the ‘577 Patent.

337. Arcadyan also indirectly infringes the ‘577 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘577 Accused Products and causing the ‘577 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘577 Accused Products, such that the ‘577 Patent is directly infringed. The accused components within the ‘577 Accused Products are material to the invention of the ‘577 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘577 Patent. Arcadyan has performed and continues to perform these affirmative acts with

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Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

knowledge of the ‘577 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘577 Patent.

338. As described above, Arcadyan knew that NXP possessed patents, including the ‘577 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. Arcadyan has also known that Velocity was the owner by assignment of the ‘577 Patent no later than the filing and service of this Complaint.

339. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

340. Arcadyan is utilizing the technology claimed in the ‘577 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘577 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

341. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘577 Patent.

342. As a result of Arcadyan’s infringement of the ‘577 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT X**  
**INFRINGEMENT OF U.S. PATENT NO. 8,265,573**

343. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

344. Arcadyan makes, sells, offers to sell, imports, and/or uses all devices that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”) with the 6E extension or a later Wi-Fi generation, including but not limited to the following products: Arcadyan’s G5AR Gateways, Wi-Fi 6E Extenders (WE7224443 and WE7224443B), and the CR1000B Router (collectively, the “‘573 Accused Product(s)”).

345. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘573 Accused Products in the United States.

346. One or more Arcadyan subsidiaries and/or affiliates use the ‘573 Accused Products in regular business operations.

347. Arcadyan has directly infringed and continues to directly infringe the ‘573 Patent by, among other things, making, using, offering for sale, and/or selling the ‘573 Accused Products. The functionality recited in the ‘573 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘573 Accused Products infringe at least claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, and 19 of the ‘573 Patent can be found in the chart attached hereto as Exhibit 21.

348. The ‘573 Accused Products are available to businesses and individuals throughout the United States.

349. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘573 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally

and equivalently) one or more claims of the ‘573 Patent, including at least claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, and 19 pursuant to 35 U.S.C. § 271(a). Exhibit 21 applies each limitation of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, and 19 of the ‘573 Patent to the ‘573 Accused Products. Velocity provides this infringement analysis without the benefit of information about the ‘573 Accused Products obtained through discovery. This chart is not intended to limit Velocity’s right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the ‘573 Patent. Exhibit 21 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 21 that is mapped to the ‘573 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

350. Arcadyan also indirectly infringes the ‘573 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the ‘573 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

351. Arcadyan has had knowledge of the ‘573 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

352. Arcadyan was further on notice of the ‘573 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

353. Alternatively, Arcadyan has had knowledge of the ‘573 Patent and its infringement thereof since no later than the filing and service of this Complaint.

354. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘573 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘573 Accused Products would infringe the ‘573 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘573 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘573 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘573 Patent, including at least claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, and 19, and Arcadyan further advertises the ‘573 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘573 Patent. On information and belief, Arcadyan advertises all of the ‘573 Accused Products as complying with the 802.11ax Standard.<sup>11</sup> By providing instruction and training to customers and end-users on how to use the ‘573 Accused Products in a manner that directly infringes one or more claims of the ‘573 Patent, including at least claims 1, 2, 3, 4, 5, 6,

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<sup>11</sup> See e.g., FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, and 19, Arcadyan specifically intended to induce infringement of the ‘573 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘573 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘573 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘573 Accused Products to use the ‘573 Accused Products in their ordinary and customary way to infringe the ‘573 Patent, knowing that such use constitutes infringement of the ‘573 Patent.

355. Arcadyan also indirectly infringes the ‘573 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘573 Accused Products and causing the ‘573 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘573 Accused Products, such that the ‘573 Patent is directly infringed. The accused components within the ‘573 Accused Products are material to the invention of the ‘573 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘573 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘573 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘573 Patent.

356. As described above, Arcadyan knew that NXP possessed patents, including the ‘573 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard.

Arcadyan has also known that Velocity was the owner by assignment of the ‘573 Patent no later than the filing and service of this Complaint.

357. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan’s 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

358. Arcadyan is utilizing the technology claimed in the ‘573 Patent without paying a reasonable royalty. Arcadyan is thus infringing the ‘573 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

359. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the ‘573 Patent.

360. As a result of Arcadyan’s infringement of the ‘573 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**COUNT XI**  
**INFRINGEMENT OF U.S. PATENT NO. 9,596,648**

361. Plaintiff references and incorporates by reference the preceding paragraphs of this Complaint as if fully set forth herein.

362. Arcadyan makes, sells, offers to sell, imports, and/or uses all Access Points (“AP”) that practice the IEEE 802.11ax (Wi-Fi 6) standard (“802.11ax Standard”), including but not

limited to the following products: 5G Gateways (G4AR, G5AR, and KVD21), Internet Gateway ARC-XCI55AX, Xstream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway, Xstream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway, G3100 and CR1000B Routers, Wi-Fi 6 Extender/Mesh Access Point WE8214443, Wi-Fi 6 Mesh Access Point/Extenders WE6204430 and WE620443, Wi-Fi 6 Extender E3200, Arcadyan WR3200 Standalone Wi-Fi 6 Router, Arcadyan WR3210 Standalone Wi-Fi 6 Router, and Wi-Fi 6E Extenders WE7224443 and WE7224443B wireless gateway, router, and extender devices (collectively, the “‘648 Accused Product(s)’”).

363. Arcadyan designs, makes, uses, sells, and/or offers for sale the ‘648 Accused Products in the United States.

364. One or more Arcadyan subsidiaries and/or affiliates use the ‘648 Accused Products in regular business operations.

365. Arcadyan has directly infringed and continues to directly infringe the ‘648 Patent by, among other things, making, using, offering for sale, and/or selling the ‘648 Accused Products. The functionality recited in the ‘648 Patent has been incorporated into the 802.11ax Standard. A detailed description as to why the ‘648 Accused Products infringe at least claims 1, 2, 4, 5, 7, 8, 10, and 11 of the ‘648 Patent can be found in the chart attached hereto as Exhibit 22.

366. The ‘648 Accused Products are available to businesses and individuals throughout the United States.

367. By making, using, testing, offering for sale, and/or selling wireless networking devices compliant with the 802.11ax Standard, including but not limited to the ‘648 Accused Products, Arcadyan has injured Plaintiff and is liable to Plaintiff for directly infringing (literally and equivalently) one or more claims of the ‘648 Patent, including at least claims 1, 2, 4, 5, 7, 8, 10, and 11 pursuant to 35 U.S.C. § 271(a). Exhibit 22 applies each limitation of claims 1, 2, 4, 5,

7, 8, 10, and 11 of the '648 Patent to the '648 Accused Products. Velocity provides this infringement analysis without the benefit of information about the '648 Accused Products obtained through discovery. This chart is not intended to limit Velocity's right to modify the chart or allege that other activities of Arcadyan infringe the identified claim or any other claims of the '648 Patent. Exhibit 22 is hereby incorporated by reference in its entirety. Each claim element in Exhibit 22 that is mapped to the '648 Accused Products shall be considered an allegation within the meaning of the Federal Rules of Civil Procedure and therefore a response to each allegation is required.

368. Arcadyan also indirectly infringes the '648 Patent by actively inducing infringement under 35 U.S.C. § 271(b). As an example, Arcadyan advertises and encourages end users to utilize the '648 Accused Products to send and receive modulated digital data via radio waves in compliance with the 802.11ax Standard (i.e., utilize the 802.11ax Standard for wireless networking).

369. Arcadyan has had knowledge of the '648 Patent since at least shortly after September 29, 2020, when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard. At a minimum, that Letter of Assurance made Arcadyan subjectively aware of the high probability that patents essential to the 802.11ax Standard existed, and Defendants deliberately avoided confirming their existence and ownership.

370. Arcadyan was further on notice of the '648 Patent and its infringement thereof no later than July 2025, when Velocity filed suit against numerous leading manufacturers and sellers of Wi-Fi 6-enabled products in the United States.

371. Alternatively, Arcadyan has had knowledge of the '648 Patent and its infringement thereof since no later than the filing and service of this Complaint.

372. Arcadyan intended to induce patent infringement by third-party customers and users of the ‘648 Accused Products and had knowledge that the inducing acts would cause infringement or was willfully blind to the possibility that its inducing acts would cause infringement. Arcadyan specifically intended and was aware that the normal and customary use of the ‘648 Accused Products would infringe the ‘648 Patent. Arcadyan performed the acts that constitute induced infringement, and would induce actual infringement, with knowledge of the ‘648 Patent and with the knowledge that the induced acts would constitute infringement. For example, Arcadyan provides the ‘648 Accused Products that have the capability of operating in a manner that infringe one or more of the claims of the ‘648 Patent, including at least claims 1, 2, 4, 5, 7, 8, 10, and 11, and Arcadyan further advertises the ‘648 Accused Products so that consumers will purchase and use the products, thus inducing those customers to infringe the ‘648 Patent. On information and belief, Arcadyan advertises all of the ‘648 Accused Products as complying with the 802.11ax Standard.<sup>12</sup> By providing instruction and training to customers and end-users on how to use the ‘648 Accused Products in a manner that directly infringes one or more claims of the

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<sup>12</sup> See e.g., FCC ID RAXTMOG4AR Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXTMOG4AR>; FCC ID RAXKVD21 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXKVD21>; FCC ID RAXXCI55AX Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXXCI55AX>; FCC ID RAXCM4642342 Equipment Authorization (Xtream DOCSIS 3.1 AX5660 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4642342>; FCC ID RAXCM4652442 Equipment Authorization (Xtream DOCSIS 3.1 AX6000 Wi-Fi 6 Cable Gateway), Federal Communications Commission, *available at*: <https://fccid.io/RAXCM4652442>; FCC ID RAXG3100 Equipment Authorization, Federal Communications Commission, *available at*: <https://fccid.io/RAXG3100>; FCC ID RAXWR3200 Equipment Authorization (Arcadyan WR3200 Standalone Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXWR3200>; FCC ID RAXCR1000B Equipment Authorization (CR1000B Router), Federal Communications Commission, *available at*: <https://fccid.io/RAXCR1000B>; FCC ID RAXWE7224443 Equipment Authorization (Wi-Fi 6E Extender WE7224443), Federal Communications Commission, *available at*: <https://fccid.io/RAXWE7224443>.

‘648 Patent, including at least claims 1, 2, 4, 5, 7, 8, 10, and 11, Arcadyan specifically intended to induce infringement of the ‘648 Patent. Arcadyan engaged in such inducement to promote the sales of the ‘648 Accused Products, e.g., through Arcadyan user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘648 Patent. Accordingly, Arcadyan has induced and continues to induce users of the ‘648 Accused Products to use the ‘648 Accused Products in their ordinary and customary way to infringe the ‘648 Patent, knowing that such use constitutes infringement of the ‘648 Patent.

373. Arcadyan also indirectly infringes the ‘648 Patent under 35 U.S.C. § 271(c) by contributing to direct infringement committed by others, such as customers and end-users, in this District and elsewhere in the United States. Arcadyan’s affirmative acts of selling and offering to sell, in this District and elsewhere in the United States, the ‘648 Accused Products and causing the ‘648 Accused Products to be manufactured, used, sold, and offered for sale contribute to customers’ and end-users’ use of the ‘648 Accused Products, such that the ‘648 Patent is directly infringed. The accused components within the ‘648 Accused Products are material to the invention of the ‘648 Patent, are not staple articles or commodities of commerce, have no substantial non-infringing uses, and are known by Arcadyan to be especially adapted for use in infringement of the ‘648 Patent. Arcadyan has performed and continues to perform these affirmative acts with knowledge of the ‘648 Patent and with intent, or willful blindness, that they cause the direct infringement of the ‘648 Patent.

374. As described above, Arcadyan knew that NXP possessed patents, including the ‘648 Patent, at least since September 29, 2020 when NXP submitted a Letter of Assurance to IEEE indicating it owned patents that may be essential to the implementation of the 802.11ax Standard.

Arcadyan has also known that Velocity was the owner by assignment of the '648 Patent no later than the filing and service of this Complaint.

375. Arcadyan did not take a license to the patents-in-suit, but instead proceeded to infringe the patents-in-suit with full and complete knowledge of their applicability to Arcadyan's 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, Arcadyan willfully blinded itself to its infringement of the patents-in-suit. Arcadyan believed with high probability that its Wi-Fi 6 products infringed but took deliberate action to avoid learning further details of its infringement.

376. Arcadyan is utilizing the technology claimed in the '648 Patent without paying a reasonable royalty. Arcadyan is thus infringing the '648 Patent in a manner best described as willful, wanton, malicious, in bad faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate.

377. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '648 Patent.

378. As a result of Arcadyan's infringement of the '648 Patent, Plaintiff has suffered monetary damages, and seeks recovery in an amount adequate to compensate for Arcadyan's infringement, but in no event less than a reasonable royalty for the use made of the invention by Arcadyan together with interest and costs as fixed by the Court.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff Velocity respectfully requests that this Court enter:

- A. A judgment in favor of Plaintiff that Arcadyan has infringed, either literally and/or under the doctrine of equivalents, the ‘570, ‘213, ‘832, ‘343, ‘870, ‘765, ‘401, ‘096, ‘577, ‘573, and ‘648 Patents;
- B. An award of damages resulting from Arcadyan’s acts of infringement in accordance with 35 U.S.C. § 284;
- C. A judgment and order finding that Arcadyan’s infringement was willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate within the meaning of 35 U.S.C. § 284 and awarding enhanced damages to Plaintiff.
- D. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding reasonable attorneys’ fees to Plaintiff against Arcadyan.
- E. Any and all other relief to which Plaintiff may show itself to be entitled.

**JURY TRIAL DEMANDED**

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiff Velocity requests a trial by jury of any issues so triable by right.

Dated: July 30, 2026

Respectfully submitted,

/s/ Daniel P. Hipskind

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