UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2021

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE TRANSITION PERIOD FROM TO**

Commission File Number 001-38952

CAMBIUM NETWORKS CORPORATION
(Exact name of Registrant as specified in its Charter)

Cayman Islands **(State or other jurisdiction of incorporation or organization)**	**Not Applicable** **(I.R.S. Employer Identification No.)**
c/o Cambium Networks, Inc. **3800 Golf Road, Suite 360** **Rolling Meadows, Illinois** **(Address of principal executive offices)**	**60008** **(Zip Code)**

Registrant's telephone number, including area code: (345) 943-3100

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary shares, $0.0001 par value	CMBM	Nasdaq Global Market

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ☐ NO ☒

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. YES ☐ NO ☒

Indicate by check mark whether the Registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☒ NO ☐

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). YES ☒ NO ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☒		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal controls over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report ☐

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES ☐ NO ☒

The aggregate market value of the ordinary shares held by non-affiliates on June 30, 2021 (the last business day of the registrant's most recently completed second fiscal quarter), based on the last sale price of the common shares on that date of $48.35 was $551,626,359. For purposes of this calculation, shares held by Vector Capital and our Chief Executive Officer are deemed to be affiliates of the registrant and are excluded from the calculation.

As of February 21, 2022 there were 26,739,282 shares of the registrant's ordinary shares outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2022 Annual Meeting of Shareholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2021.

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Note regarding forward-looking statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the federal securities laws. All statements other than statements of historical fact contained in this Annual Report on Form 10-K, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, forward-looking statements may be identified by terms such as “may,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this Annual Report on Form 10-K are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this report and are subject to a number of risks, uncertainties and assumptions described in Item 1A, “Risk Factors” and elsewhere in this Annual Report on Form 10-K. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, they should not be relied upon as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include:

- the unpredictability of our operating results;
- our inability to predict and respond to emerging technological trends and network operators’ changing needs;
- the impact of competitive pressures on the development of new products;
- the impact of actual or threatened health epidemics and other outbreaks including the impact of the COVID-19 pandemic;
- our limited or sole source suppliers’ inability to acquire or produce third-party components to build our products and the impact of supply shortages, extended lead times or changes in supply of components and other parts required to manufacture our products;
- the impact of increases in logistics, freight and other shipping costs and constraints on logistics and shipping due to labor shortages, container shortages or other constraints;
- our reliance on third-party manufacturers, which subjects us to risks of product delivery delays and reduced control over product costs and quality;
- our reliance on distributors and value-added resellers for the substantial majority of our sales;
- the inability of our third-party logistics and warehousing providers to deliver products to our channel partners and network operators in a timely manner;
- our distributors’ and channel partners’ inability to attract new network operators or sell additional products to network operators that currently use our products;
- the technological complexity of our products, which may contain undetected hardware defects or software bugs or subject our products to the risks of ransomware or malware or other cyber attacks;
- our channel partners’ inability to effectively manage inventory of our products, timely resell our products or estimate expected future demand;
- credit risk of our channel partners, which could adversely affect their ability to purchase or pay for our products;
- our inability to maintain an effective system of internal controls, produce timely and accurate financial statements or comply with applicable regulations;
- our reliance on the availability of third-party licenses;
- risks associated with international sales and operations including risks caused by political tensions;
- current or future unfavorable economic conditions, both domestically and in foreign markets; and
- our inability to obtain intellectual property protections for our products.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this Annual Report on Form 10-K.

Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events or otherwise.

Summary Risk Factors

The following is a summary of the principal risks described below in Part I, Item 1A "Risk Factors" in this Annual Report on Form 10-K. We believe that the risks described in the "Risk Factors" section are material to investors, but other factors not presently known to us or that we currently believe are immaterial may also adversely affect us. The following summary should not be considered an exhaustive summary of the material risks facing us, and it should be read in conjunction with the "Risk Factors" section and the other information contained in this Annual Report on Form 10-K.

- Our operating results can be difficult to predict and may fluctuate significantly, which could result in a failure to meet investor expectations or our guidance and a decline in the trading price of our shares.
- The introduction of new products and technology is key to our success, and if we fail to predict and respond to emerging technological trends and network operators' changing needs, we may be unable to remain competitive
- Competitive pressures may harm our business, revenues, growth rates and market share.
- We face risks related to actual or threatened health epidemics and other outbreaks, which could significantly disrupt our manufacturing, sales and other operations.
- We require third-party components, including components from limited or sole source suppliers, to build our products. The unavailability of these components could substantially disrupt our ability to manufacture our products and fulfill sales orders.
- Some of the key components in our products come from sole or limited sources of supply, and we are therefore susceptible to supply shortages, extended lead times or supply changes, which could disrupt or delay our scheduled product deliveries to our end customers and may result in the loss of sales and end customers.
- We may face increased costs or other logistics challenges in the shipment of our products, which may increase cost of revenues or result in a delay of shipments to customers.
- We rely on third-party manufacturers, which subjects us to risks of product delivery delays and reduced control over product costs and quality.
- We outsource manufacturing to third-party manufacturers operating outside of the U.S., subjecting us to risks of international operations.
- We rely on distributors and value-added resellers for the substantial majority of our sales, and the failure of our channel partners to promote and support sales of our products would materially reduce our expected future revenues.
- Our revenue growth rate in recent periods may not be indicative of our future performance.
- Our third-party logistics and warehousing provider may fail to deliver products to our channel partners and network operators in a timely manner, which could harm our reputation and operating results.
- Our ability to sell our products is highly dependent on the quality of our support and services offerings, and our failure to offer high-quality support and services could have a material adverse effect on our business, operating results and financial condition.
- If we or our distributors and channel partners are unable to attract new network operators or sell additional products to network operators that currently use our products, our revenue growth would be adversely affected, and our revenues could decrease.
- Our gross margin varies from period to period and may decline in the future.
- Our products are technologically complex and may contain undetected hardware defects or software bugs, or subject our products to ransomware or other cyber attacks which could result in increased warranty claims, increased costs, loss of revenues and harm to our reputation.
- If our channel partners do not effectively manage inventory of our products, fail to timely resell our products or overestimate expected future demand, they may reduce purchases in future periods, causing our revenues and operating results to fluctuate or decline.

- If we are not able to effectively forecast demand or manage our inventory, we may be required to record write-downs for excess or obsolete inventory.
- We are exposed to the credit risk of our channel partners, which could result in material losses.
- If we do not effectively deploy and train our direct sales force, we may be unable to increase sales.
- A portion of our revenues are generated by sales to government entities, which are subject to a number of challenges and risks.
- We generate a significant amount of revenues from sales outside of the United States, and we are therefore subject to a number of risks associated with international sales and operations.
- Economic conditions and regulatory changes following the United Kingdom’s exit from the European Union could adversely impact our operations, operating results and financial condition.
- A substantial portion of our product portfolio relies on the availability of unlicensed RF spectrum and if such spectrum were to become unavailable through overuse or licensing, the performance of our products could suffer and our revenues from their sales could decrease.
- New regulations or standards or changes in existing regulations or standards in the United States or internationally related to our products may result in unanticipated costs or liabilities, which could have a material adverse effect on our business, results of operations and future sales.
- We are subject to governmental export and import controls that could impair our ability to compete in international markets and subject us to liability if we are not in compliance with applicable laws.
- We do business in countries with a history of corruption and transact business with foreign governments, which increases the risks associated with our international activities.
- If we fail to comply with environmental requirements, our business, financial condition, operating results and reputation could be adversely affected.
- Our business, operating results and financial condition could be materially harmed by regulatory uncertainty applicable to our products and services.
- If we were not able to satisfy data protection, security, privacy and other government- and industry-specific requirements or regulations, our business, results of operations and financial condition could be harmed.
- Cyber-attacks, data breaches or malware may disrupt our operations, harm our operating results and financial condition, and damage our reputation or otherwise materially harm our business; and cyber-attacks or data breaches on our customers’ networks, or in cloud-based services provided by or enabled by us, could result in claims of liability against us, damage our reputation or otherwise materially harm our business.
- Vulnerabilities and critical security defects, prioritization decisions regarding remedying vulnerabilities or security defects, failure of third-party providers to remedy vulnerabilities or security defects, or customers not deploying security releases or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation, or otherwise materially harm our business.
- We rely on the availability of third-party licenses, the loss of which could materially harm our ability to sell our products.
- If we are unable to protect our intellectual property rights, our competitive position could be harmed or we may incur significant expenses to enforce our rights.
- Claims by others that we infringe their intellectual property rights could harm our business.
- Our obligations to indemnify our channel partners and network operators against intellectual property infringement claims could cause us to incur substantial costs.
- If our third-party manufacturers do not respect our intellectual property and trade secrets and produce competitive products using our design, our business would be harmed.
- We use open source software in our products that may subject our firmware to general release or require us to re-engineer our products and the firmware contained therein, which may cause harm to our business.
- Our business and prospects depend on the strength of our brand. Failure to maintain and enhance our brand would harm our ability to increase sales by expanding our network of channel partners as well as the number of network operators who purchase our products.

- A portion of our revenues are generated by sales to government entities, which are subject to a number of challenges and risks.
- We generate a significant amount of revenues from sales outside of the United States, and we are therefore subject to a number of risks associated with international sales and operations.
- A substantial portion of our product portfolio relies on the availability of unlicensed RF spectrum and if such spectrum were to become unavailable through overuse or licensing, the performance of our products could suffer and our revenues from their sales could decrease.
- We may acquire other businesses which could require significant management attention, disrupt our business, dilute shareholder value and adversely affect our operating results.
- New regulations or standards or changes in existing regulations or standards in the United States or internationally related to our products may result in unanticipated costs or liabilities, which could have a material adverse effect on our business, results of operations and future sales.
- We are subject to governmental export and import controls that could impair our ability to compete in international markets and subject us to liability if we are not in compliance with applicable laws.
- We rely on the availability of third-party licenses, the loss of which could materially harm our ability to sell our products.
- If we are unable to protect our intellectual property rights, our competitive position could be harmed or we may incur significant expenses to enforce our rights, and claims by others that we infringe their intellectual property rights could harm our business.
- If we fail to maintain an effective system of internal controls, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.
- Our credit facility contains restrictive financial covenants that may limit our operating flexibility.
- Because Vector Capital holds a controlling interest in us, the influence of our public shareholders over significant corporate actions will be limited.
- The price of our shares may be volatile, and shareholders could lose all or part of their investment.
- Because we are incorporated under Cayman Islands law, shareholders may face difficulties in protecting their interests, and the ability to protect rights through U.S. courts may be limited.
- Our directors may have conflicts of interest because of their ownership of equity interests of, and their employment with, our parent company and our affiliates.
- If we are unable to manage our growth and expand our operations successfully, our business and operating results will be harmed.

Trademarks and Service Marks

"Cambium" , "Cambium Networks", "cnPilot", "cnMaestro", ‘cnMedusa", "cnArcher", "cnReach", "cnHeat", "cnRanger", "cnWave", "cnVision", "LinkPlanner", "Xirrus", the Cambium and Xirrus logos and other trademarks or service marks of Cambium Networks, Ltd. appearing in this Annual Report are the property of Cambium Networks Corporation. This Annual Report contains additional trade names, trademarks and service marks, which are the property of their respective owners.

PART I

Item 1. Business.

Business Overview

What we do

We provide fixed wireless broadband and Wi-Fi networking infrastructure solutions for commercial and government network operators as well as broadband service providers and other network operators, including large industrial organizations, innovative broadband service providers, and public and private networks across the globe. Our scalable, reliable and high-performance solutions enable the creation of a purpose-built wireless fabric that connects people, places and things with a unified wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud, deployed indoors and outdoors. Our multi-gigabit wireless fabric offers a compelling value proposition over traditional fiber and alternative wireless solutions.

Our wireless fabric includes intelligent radios, smart antennas, radio frequency, or RF, algorithms, wireless-aware switches and our on-premise or cloud-based network management software. Our embedded proprietary RF technology and software enables automated optimization of data flow at the outermost points in the network, which we refer to as the “intelligent edge.” This intelligent edge offers network operators increased performance, visibility, control and management, as well as the ability to efficiently transfer large amounts of data back to enterprise data centers for fast and efficient analysis and decision-making even in conditions characterized by a high degree of interfering signals generated both within the network or from outside sources, which we refer to as noise. Our products support licensed and unlicensed spectrum, tailored for many frequency bands. We provide deep technical and operational expertise based on years of deploying networks, resulting in ease of use of our products, and all Cambium Networks solutions are backed by our global organization that provides 24/7 support services tailored to meet the business needs of our end users.

Our solutions are deployed by wireless broadband internet service providers, mobile network operators, and managed service providers, as well as in private networks, including enterprises, petrochemical, military, state and local government, education, hospitality, rail, utility, industrial and other network operators. Our technology is used to connect a wide range of network assets, from offices, service organizations (schools, hospitality, healthcare) and industrial processes, to guest and public access via Wi-Fi to complex sensor networks. Network operators deploy our enterprise-grade solutions to take advantage of their scalability, intelligence, reliability, durability, attractive economics and ease of deployment.

We market and sell our solutions through our global channel partner network, which drives a substantial majority of our revenues. We sell our solutions as one-time sales as well as a growing number of subscription-based products, with a majority of our revenues in a given period typically being generated by purchases from network operators that have previously purchased our products. Growth from these network operators is driven by expansion within existing networks and in new territories, replacement of competitor products with our solutions, deployment of new and incremental use cases and, in the case of local governments, mandates to offer fixed broadband wireless to all of their citizens.

How our solutions work

We offer fixed wireless broadband networking infrastructure solutions differentiated by scalability, embedded intelligence, reliability, high quality at attractive economics and ease of deployment. Our enterprise-grade Wi-Fi solutions provide indoor and outdoor capabilities and leading spectral efficiency that reduces self-interference and optimizes spectral efficiency and frequency reuse across the network.

Our Point-to-Point, or PTP, solutions are typically connected to high-speed, high-bandwidth wireline networks, and provide wireless broadband backhaul to facilities or Point-to-Multipoint, or PMP, access points deployed throughout a network over distances of more than 100 kilometers and at more than 2 Gbps. Our PMP solutions extend wireless broadband access from tower mounted fixed wireless access points to CPE providing broadband access to residences and enterprises covering wide areas with a range of 10 to 30 kilometers. Our PMP solutions are increasingly used to backhaul video surveillance systems. Our cnPilot and Xirrus Wi-Fi solutions provide distributed access to individual users in indoor settings, such as office complexes, and outdoor settings, such as athletic stadiums and outdoor public Wi-Fi spots, over distances as short as two meters with high capacity. Our cnReach solutions offer narrow-band connectivity typically using licensed spectrum below 1 GHz and typically used by industrial customers connecting remote field operations supporting sensors and devices at the network edge. Our embedded proprietary RF technology and software enables automated optimization of data flow at the outermost points in the network. Our cnMatrix cloud-managed wireless-aware switching solution provides the intelligent interface between wireless and wired networks. Our cnVision solutions are purpose built wireless connectivity solutions for video surveillance and CCTV deployments and provide the necessary bandwidth to transport mission-critical video wirelessly, for the video surveillance market.

Our technology and products

Cambium Networks Product Portfolio Summary								
Network Management	cnMaestro X - Cloud-Based Management Software cnMaestro Essentials - Cloud-Based Management Software XMS - On Premises and Cloud-Based Wi-Fi Management Software							
Wired Convergence	cnMatrix - Wireless Aware Switching							
Product Platform	Wi-Fi 6/ cnPilot/ Xirrus	28 GHz cnWave	60 GHz cnWave	ePMP	PMP 450	PTP 550/670/700	PTP 820/850	cnReach
Design Focus	Configurable, Cloud-managed, High performance Wi-Fi	Purpose built fixed 5G for residential and enterprise access	Gbps to the edge with Terragraph meshing for urban and high density suburban markets	Price/Performance PTP and PMP Leadership	Unparalleled Scalability for Multipoint networks	Industry Leading Sub-6 GHz Backhaul Performance	Licensed Microwave Backhaul	Licensed Narrowband in rugged I/O rich package
Throughput	1+ Gbps/AP	3 Gbps/Sector	15 Gbps/DN	1.2 Gbps/ Sector	1.4 Gbps/Sector	450 - 1400 Mbps	2+ Gbps	4.4 Mbps
Spectrum (GHz except as noted)	2.4, 5	24.25-29.5	57 - 66	2.4, 4.9, 5.x, 6.4	900 MHz, 2.4, 3.5, 3.65, 5.x	4.4 - 5.925 7.0 - 8.50	6 - 38 71 - 86	220, 450, 700, 900 MHz

Point-to-Point backhaul solutions

We offer PTP solutions that are designed to operate in unlicensed spectrum from 220 MHz to 5.9 GHz and in licensed spectrum from 6-38 and 71-86 GHz. In addition, our PTP 700 operates in NATO Band IV from 4.4-5.9 GHz, as well as in the 7 GHz and 8 GHz bands, and meets stringent federal operating, performance and security standards. The mainstay of our backhaul offering is the PTP 670 for commercial applications and PTP 700 for defense and national security applications. In addition, our PTP 820 series offers carrier-grade microwave backhaul in licensed spectrum, and our PTP 550 offers price-performance leadership in spectral efficiency in sub-6 GHz unlicensed spectrum. In addition to dedicated point-to-point platforms, as technology has evolved, solutions have developed that while principally supporting point-to-multi-point architectures, also support point-to-point applications, including the recently introduced 60 GHz cnWave v3000 Client Node and the ePMP Force 425. Revenues from these products are included in the PMP product category in our revenues by product category reporting, as that is their primary application.

Point-to-Multipoint distribution solutions

Our PMP portfolio ranges from our top-of-the-line PMP 450 series to our ePMP solutions for network operators that need to optimize for both price and performance to our cnReach family of narrow-bandwidth connectivity products for industrial communications. The PMP 450 series is optimized for performance in high-density and demanding physical environments, and includes the PMP 450m with integrated cnMedusa massive multi-user multiple input/multiple output, or MU-MIMO, technology. The PMP 450 product line also supports the FCC’s Citizen Broadband Radio Service, or CBRS. The FCC completed the auction of CBRS Priority Access Licenses, or PAL, in the third quarter of 2020, complementing the existing availability of General Authorized Access, or GAA, licenses. Network operators are adopting the PMP 450 solution to exercise both PAL and GAA licenses. For less demanding environments, ePMP provides a high-quality platform at a more affordable price. The ePMP 3000 supports 4x4 MU-MIMO and is complemented by a broad portfolio of ePMP Force 300 subscriber radios. cnRanger, our Fixed LTE solution, operated in the 2 GHz (Bands 38, 40, 41) and 3 GHz (Bands 42, 43, 48). Like the PMP 450 platform, the 3 GHz cnRanger solution supports the CRBS service, while the 2 GHz bands support the FCC’s Educational Broadband Service, or EBS, classification. cnReach products enable IIoT applications, such as supervisory control and data acquisition, or SCADA, processes in the oil and gas, electric utility, water, railroad and other industrial settings. In the fourth quarter of 2020, we began shipping our 60 GHz solution, cnWave, which enables Gbps networking using the 60 GHz band and includes Facebook Terragraph technology.

Wi-Fi access solutions

Our Wi-Fi portfolio includes our cnPilot cloud-managed Wi-Fi solutions, our cnMatrix cloud-managed wireless-aware switching solution, our Xirrus Wi-Fi solutions, and our Wi-Fi 6 portfolio of Wi-Fi 6 access points which support both cnMaestro and Xirrus XMS management. cnPilot is for indoor and outdoor enterprise, small business and home applications and offers a range of Wi-Fi access points and RF technology that enable network optimization based on desired geographic coverage and user density. Xirrus has a portfolio of high-performance enterprise Wi-Fi access points and cloud-based subscription services. In June 2020, we introduced our first Wi-Fi 6 access point, the XV3-8, which supports both cnPilot and Xirrus solutions.

cnMatrix Ethernet enterprise switching solutions

Our cnMatrix Ethernet enterprise switching solutions simplify network deployment and operation. cnMatrix provides the intelligent interface between wireless and wired networks. cnMatrix's policy-based configuration accelerates network deployment, mitigates human error, increases security, and improves reliability. When deployed with cnPilot WLAN access points and the cnMaestro management system, network operators have an affordable, feature-rich, high quality unified wired/wireless enterprise grade network. In the first quarter of 2021, we introduced and began shipping the cnMatrix TX 2020R-P. The TX 2020R-P is the first of a series of switches designed specifically to support PMP and PTP fixed wireless broadband networks, incorporating the cnMatrix enterprise class feature set and incorporating additional features and services pertinent to network operators deploying fixed wireless broadband networks. The TX 2012R-P was introduced in April 2021 and is the second platform in the TX series.

cnReach IIoT solutions

Our cnReach IIoT solutions offer connectivity for distributed sensors and controls across industrial deployments, delivering real-time monitoring, measurement and analytics to optimize system performance. Our products can be deployed in a variety of industrial verticals such as oil and gas, electrical utilities, water management, rail and transportation operations and smart cities. cnReach focuses on SCADA systems for process control and monitoring, providing affordable, narrowband wireless connectivity, operating below 1 GHz, to support distribution automation, substation switches, circuit control and telemetry.

cnVision video surveillance transport solutions

Our cnVision solutions are purpose built wireless connectivity solutions for video surveillance and CCTV deployments and provide the necessary bandwidth to transport mission-critical video wireless, for the video surveillance market.

cnMaestro and network management tools

Our cloud-based cnMaestro network management platform and our Xirrus XMS Cloud platform provide users with an integrated, intelligent, easy to use tool for end-to-end network management of our portfolio from the network operating center to individual customer premise equipment, or CPE, on a single pane of glass. cnMaestro's interface allows users to easily onboard large numbers of new devices, configure existing devices, monitor the entire network and troubleshoot end-to-end. Our cnHeat solution is a network planning subscription service that provides a heat map coverage model display of locations that are available for fixed wireless broadband connectivity that aids in network planning. cnHeat utilized LiDAR or equivalent geospatial data to accurately model the geography being evaluated, coupled with highly accurate RF modeling, to render a visual and quantitative assessment of anticipated RF coverage and performance. cnHeat allows network operators to optimize site selection for coverage, supporting their total cost of ownership and return on investment.

LINKPlanner is a comprehensive tool, developed over the past 12 years, used to plan PTP and PMP networks. LINKPlanner allows users to visualize and analyze hypothetical network deployment scenarios to evaluate performance and reliability allowing for cost-effective expansion and deployment of their networks. cnArcher is a smartphone app that accelerates installation and deployment of our products by field technicians.

Network operators and distribution channel

We sell our solutions globally through our channel partners to wireless Internet service providers, mobile network operators, enterprises and government agencies. As of December 31, 2021, we had over 11,300 channel partners, which includes over 170 distributors. Wireless Internet service providers using our products are typically serving between 1,000 and more than 200,000 subscribers. Enterprises using our products are in industries such as oil and gas, agriculture, mining, utilities, transportation, surveillance, hospitality, education and general corporate enterprises. Government entities using our products include local government agencies, federal agencies and defense organizations.

Through our channel sales network, we sell to our global network of distributors who in turn either sell directly to network operators or supply our products to value added resellers. These channel partners provide lead generation, pre-sales support and product fulfillment. Playing a central role in the channel, distributors support us by promoting and distributing our products in target vertical markets, providing value-added support to the reseller channel by bringing core strengths in technical support and professional services, all in addition to financing, logistics, and sales and marketing support. Our distributors typically stock and manage inventory of our products.

Our ConnectedPartner program is designed to maximize global coverage while minimizing channel conflict and enhance the ability of our channel partners to succeed in the sale and deployment of our products and solutions. Channel partners registered under our ConnectedPartner program gain access to product discounts, sales and marketing tools, marketing materials, specifications sheets, case studies and solution papers to aid in the sale and deployment of our products and solutions globally. We also offer access through our ConnectedPartner program to technical product training, deal registration, account management support, business development support, webinars and events, promotions and joint marketing initiatives, and qualified lead information as well as participation in our demonstration equipment programs.

Sales and marketing

We promote the sale of our products globally in partnership with our channel partners as well as through our direct sales force. Our sales organization typically engages directly with large Internet service providers and certain enterprises even though product fulfillment generally involves our channel partners, and also provide sales support to our channel partners across the platform. Our sales organization includes field and inside sales personnel, as well as regional technical managers with deep technical expertise who are responsible for pre-sales technical support and solutions engineering for network operators, systems integrators and channel partners. As of December 31, 2021, we had 125 sales personnel located in 21 countries.

Our marketing activities consist primarily of technology conferences, web marketing, trade shows, seminars, webinars and events, public training classes, public relations, analyst relations, demand generation and direct marketing to build our brand, increase customer awareness, communicate our product advantages and generate qualified leads for our field sales force and channel partners.

Support and service

Customer support

We provide multiple layers of support: technical support, information-sharing with an experienced community of users, software downloads, warranty services, and repair. We support our enterprise class solutions with a range of flexible service plans and 24/7 availability that provide assurance to network operators that their always-on, mission critical communications requirements will be met. With every product purchase, Cambium Networks provides technical support on a best-effort basis. Hardware issues are diagnosed via joint troubleshooting with the end user and the issue will be addressed according to standard warranty status and the root cause of the issue. This may be sufficient for some customers who can largely manage and operate their network without assistance and hold adequate spares. For others, Cambium Networks provides three support programs staffed by our skilled technical support team and product support engineers to keep the network operating smoothly and efficiently and may provide 24x7x365 technical support and premium warranty support and allow network operators to select the service level that best meets their needs. Our support organization both supports channel partners in supporting their direct customers and provides first-line support to our direct customers. Technical support is also available on-line via chat and automated ticketing systems.

Training

We work closely with our channel partners and network operators to provide comprehensive product training so that they are familiar with the implementation and usage of our products. The training and certification system is administered through a learning management system that provides the user a record of their course work, exam results, current certifications and access to on demand self-directed training resources that complement instructor-led sessions scheduled frequently around the world. In 2017, we also launched Cambium College, a free education program where senior members of our design and development teams share their experience to familiarize people with the math and physics concepts involved in designing and operating a wireless broadband or Wi-Fi network.

Cambium Community Forum

To complement our customer support and training, we launched the Cambium Community Forum in 2014 as a platform where we, our network operators and our channel partners can collaborate in real-time on practical solutions to real-world deployment situations, contribute to and consult a collective online knowledge base concerning our products and best practices, and share stories and photographs of customer experiences about product installations and unique use cases of our technology. In 2019, we added discussion forums focusing on CBRS, Video Surveillance, and Wi-Fi 6. Our Community Forum is moderated by our staff with direct and active engagement by our development engineering and product management personnel. Leveraging the Community Forum, we collect network operator and channel partner feedback on potential product improvements and new product ideas, including through the administration of beta testing on our products. As of December 31, 2021, there were approximately 41,000 registered forum members on our Community Forum.

Manufacturing and supply

We outsource the manufacturing of our products to third party manufacturers. For some of our products, we do substantially all of the design work; for other products, we outsource both the design (in whole or in part) and the manufacture of the product; and for several products we distribute and sell a product designed and manufactured by a third party under our name on a white label basis. We require all of our primary contract manufacturers to be ISO-9001 certified.

Our third-party manufacturing partners generally procure the components needed to build and assemble our products according to our design specifications. This allows us to leverage the purchasing power of our contract manufacturing partners. For items that we design, we generally retain complete control over the bill of material, test procedures and quality assurance programs. For other products, the third party may control the bill of material. We review, on an ongoing basis, forecasts, inventory levels, processes, capacity, yields and overall quality. Our third-party manufacturers procure components and assemble our products based on our demand forecasts. These forecasts represent our estimates of future demand for our products based on historical trends and analyses from our sales and product management functions as adjusted for overall market conditions. Generally, for our primary third-party manufacturers, we update these forecasts monthly.

Once the completed products are manufactured and tested, configured, inspected and pass quality control inspection, our contract manufacturers ship the products to our direct fulfillment facilities in Kentucky, the Netherlands and Shanghai for shipment to our distributor partners and network operators. We outsource the warehousing and delivery of our products at these fulfillment facilities to a third-party logistics provider for worldwide fulfillment. For the majority of our products, our customers ship products from our fulfillment facilities on an ex works basis and are responsible for shipping and other costs and for fulfilling import and other customs and duties requirements.

While components and supplies are generally available from a variety of sources, we and our contract manufacturers currently depend on a single or limited number of suppliers for several components for our products. We do not always have a second source for these components readily available. In addition, we currently have a limited number of suppliers for several other components for our products. We and our contract manufacturers generally rely on purchase orders rather than long-term contracts with these suppliers, although for certain components our contract suppliers have contracts in place with component suppliers that we are able to leverage. In periods of shortages, we have in the past and may in the future need to build inventory of select components. If we need to seek a suitable second source for key components or to modify our designs to use substitute components, our ability to meet the demand for our products, and as a result our business and operating results, could suffer.

We have been constrained by the global component part shortages, particularly the shortage in available semiconductor chipsets and related components, as the global integrated circuit supply is under pressure as demand surpasses supply capacity, causing foundries to allocate existing supply among their customers. These supply constraints are occurring at a time of increasing demand for us and others globally, particularly from automotive as well as the migration from 4G to 5G technology, and the continued need for connectivity as workers continue remote working, further exacerbating the supply constraint. As a result, we are experiencing increased lead times for the supply of many of our products, impacting our ability to timely supply our customers. In particular, semiconductor chips and merchant silicon and related semiconductor parts are currently in high demand with limited supply, which is resulting in significantly longer than usual lead times and increased costs for these components. We have encountered, and are likely to continue to encounter, shortages and delays in obtaining these and other components, and this has and may continue to have a material adverse effect on our ability to meet customer orders and cause a delay or reduction in our revenues. Shortages are expected to continue into 2022. In addition, such shortages or delays are resulting in increased component and delivery costs, as suppliers raise the cost of components, causing our manufacturing costs to increase. We have also experienced price increases in base commodities, impacting component pricing generally and in particular for electromechanical commodities, as well as extended lease times from any of our suppliers. These component shortages and increases in costs, and extension of lead times, have impacted, and are expected to continue over the short term to continue to impact our sales and revenues, and our gross margins and net income. To meet some of these challenges, we have increased the lead-times to our customers and increased our forecasts to our suppliers to provide better linearity in our supply and be better able to meet our customer orders, particularly for critical parts.

Logistics challenges remain as well, as container shortages continue to lengthen availability times of containers and carriage, resulting in increases in relevant freight costs, all at a time when demand across many of our product lines has increased, together with increasing demand for shipment of many other products globally. Shutdowns in China due to coal shortages, lockdowns in South Asia due to the continued impact of COVID-19, increases in gas prices, and labor shortages particularly for logistics, continue to impact our supply operations. Ports have increasing lead times with delays becoming commonplace in the container freight market as port delays, worker shortages and the impact of COVID-19 are impacting the ability to import and export goods, particularly from China. Logistics and freight costs are increasing substantially as a result. We are also experiencing increasing rates, resulting in increased use of expedited freight modes due to supply shortages. The use of expedited freight modes has increased our cost of revenues, resulting in a decrease in our gross margins, and is expected to continue in the short term.

Our suppliers and manufacturers in China and elsewhere could continue to be disrupted by worker absenteeism, quarantines, office and factory closures due to COVID-19, disruptions to ports and other shipping infrastructure, or other travel or health-related restrictions. In addition, freight and logistics constraints caused in part by restrictions imposed by governments to combat the COVID-19 pandemic have increased costs and constrained available transport, for us and our channel partners. If our supply chain operations continue to be affected or are curtailed by the outbreak of diseases such as COVID-19, our supply chain, manufacturing and product shipments will be delayed, which could adversely affect our business, operations and customer relationships. We have and may continue to need to seek alternate sources of supply which may be more expensive, unavailable or may result in delays in shipments to us and from our supply chain and subsequently to our customers. See "Risk Factors, *We face risks related to actual or threatened health epidemics and other outbreaks, which could significantly disrupt our manufacturing, sales and other operations"* below.

Research and development

As of December 31, 2021, our research and development organization has over 280 employees located primarily in San Jose and Thousand Oaks, California, Rolling Meadows, Illinois, Ashburton, United Kingdom and Bangalore, India. We also work with contract engineers in various locations globally. Our research and development team has deep expertise and experience in wireless technology, antenna design and network architecture and operation. We expect to continue to expand our product offerings and solutions capabilities in the future and to invest significantly in continued research and development efforts.

Intellectual property

Our success depends in part on our ability to protect our core technology and innovations. We rely on federal, state, common law and international rights, as well as contractual restrictions, to protect our intellectual property. We control access to our proprietary technology by entering into confidentiality and invention assignment agreements with our employees and contractors, and confidentiality agreements with third parties, such as Internet service providers, vendors, individuals and entities that may be exploring a business relationship with us. In addition to these contractual arrangements, we also rely on a combination of trade secrets, copyrights, patents, trademarks, service marks and domain names to protect our intellectual property. We seek patent protection for certain of our key innovations, protocols, processes and other inventions. We pursue the registration of our trademarks, service marks and domain names in the United States and England and in certain other locations outside of these jurisdictions. These laws, procedures and restrictions provide only limited protection and the legal standards relating to the validity, enforceability and scope of protection of intellectual property rights are uncertain and still evolving. Furthermore, effective patent, trademark, copyright and trade secret protection may not be available in every country in which our products are available.

As of December 31, 2021, we had 90 issued U.S. patents and 142 patents issued in various foreign jurisdictions as well as 6 U.S. and 29 foreign patent applications pending. We file patent applications in the United States and other countries where we believe there to be a strategic technological or business reason to do so. Although we actively attempt to utilize patents to protect our technologies, we believe that none of our patents, individually, are material to our business.

Competition

The market for wireless broadband solutions is rapidly evolving, highly competitive and subject to rapid technological change. We expect competition to persist, intensify and increase in the future.

In all of our markets, we compete with a number of wireless equipment providers worldwide that vary in size and in the products and solutions offered. Our competitors for products and solutions for the unlicensed, sub-6 GHz spectrum bands include Ubiquiti, Airspan, Radwin, MikroTik, Ligowave, and HFCL Group. Our 28 GHz cnWave mm-Wave product competes with Intracom, Nokia, and Samsung. Our 60 GHz cnWave mmWave product competes with Siklu, Adtran, and MikroTik. In the licensed microwave market, our competitors include SIAE, SAF Technica and Aviat Networks, among others. Our Wi-Fi products and solutions compete with Aruba (HPE), Ruckus (CommScope), Extreme Networks, Ubiquiti and Meraki (Cisco). Our cnReach IIoT products and solutions compete principally with GE MDS and Freewave. Our cnMatrix cloud-managed switch platform competes with Ubiquiti, Ruckus (CommScope), Aruba (HPE) and MikroTik. Our cnMatrix Ethernet enterprise switching products and solutions compete with MikroTik, Ubiquiti and Aruba (HPE).

As our target markets continue to develop and expand, and as the technology for wireless broadband continues to evolve, we expect competition to increase and expand from both established and emerging market participants.

The market for our products and solutions is influenced by a variety of factors, including the following:

- Total cost of ownership and return on investment associated with the solutions;
- Ease of configuration, installation and use of the solution;
- Ability to provide a complete compatible solution;
- Broad application across a range of use cases and frequencies;
- Product quality, functionality and reliability;
- Ability to allow centralized management of the solutions to enable better network planning, including scalable provisioning, configuration, monitoring and complete network visualization; and
- Ability to provide quality, full service pre- and post-sales product support.

We believe we compete favorably on each of these factors.

Regulatory requirements

In addition to regulations of general application to global businesses, we are subject to a number of regulatory requirements specific to our industry, including, without limitation:

- Radio frequency usage. Because our products transmit energy in radio frequency spectrum, our products are subject to:
  - rules relating to radio frequency spectrum allocation and authorization of certain radio equipment issued by the Federal Communications Commission for non-federal uses or the National Telecommunications and Information Administration for federal uses; and
  - local type approval, or homologation, rules requiring confirmation that our products meet minimum regulatory, technical and safety requirements prior to sale in various countries around the world, for example: European Technical Standards Institute (ETSI), Industry Canada (IC) and Agencia National De Telecommunicatoes (Anatel).

The applicable regulatory agencies in each jurisdiction adopt regulations to manage spectrum use, establish and enforce priorities among competing uses, limit harmful radio frequency interference and promote policy goals such as broadband deployment. These spectrum regulations regulate allocation, licensing, and equipment authorizations. Since our customers purchase devices to operate in specific spectrum bands allocated by the regulatory authorities, our products must meet the technical requirements set forth for such spectrum allocation(s).

In some bands, the operator, such as our customer, must seek prior regulatory authority to operate using specified frequencies, and the resulting spectrum license authorizes the licensee, for a limited term, to operate in a spectrum consistent with licensed technical parameters within a specified geographic area. We must design and manufacture our products to comply with these technical parameters.

Our products generally are subject to compliance testing prior to approval, and, as a condition of authority in each jurisdiction, we must ensure that our products have the proper labels and documentation specifying such authority. We generally use telecommunications certification bodies to obtain certification for our devices in each jurisdiction in which we intend to market and sell our products.

- Trade compliance requirements. We are subject to compliance with rules in jurisdictions from which we export or into which we import our products, including export control and reporting, import clearance, anti-bribery, antitrust and competition rules and regulations, including:
  - Import and export requirements issued by the United States, the European Union or other jurisdictions, including the U.S. Department of Commerce, the Office of Foreign Assets Control, the U.K. Foreign, Commonwealth & Development Office, Ministry of Defense and Department of International Trade including rules banning sales to persons or entities on applicable designated parties lists, or to persons or entities in embargoed countries, rules requiring export licenses prior to sales of products incorporating encryption technology to certain end users, and local rules governing import of products, including packaging and labeling laws. In addition, some of our products include enabled encryption technology, which may require us to obtain a license prior to a sale to certain foreign agencies. These rules require us to monitor databases of, and establish and enforce policies to prohibit the sale of our products to, embargoed persons, entities and countries.

- Rules and regulations, particularly in the United States and the European Union, governing environmental matters that restrict the use of certain dangerous substances in electrical or electronic equipment, govern use of certain chemical substances throughout their lifecycle and Waste Electrical and Electronic Equipment, Directive 2012/2019/EU, related to the collection, treatment, recycling and recovery of waste electrical and electronic equipment in the European Union and related laws elsewhere. These rules govern our use of components in our products, requiring us to comply with environmental rules and regulations in our selection of component parts and in the manufacturing process, as well as over the disposal upon destruction or retirement of our products.

We are also subject to rules governing our use of personal data, such as the General Data Protection Regulation in the European Union, the California Consumer Privacy Act, and other applicable regulations in the United States and around the world, and current and proposed e-privacy and direct marketing rules governing direct and email marketing. These rules govern how we use personal data of our employees, customers and others with whom we might do business, including in our marketing activities.

Human Capital Management

We pride ourselves on developing and maintaining a strong reputation for innovation and integrity and conduct our business affairs honestly and in an ethical manner. We are proud to be named by Built In Chicago one of the 100 best large companies to work for in Chicago in 2022. We expect our corporate culture to embody trust and respect for individuals, teamwork and innovation; Cambium is a place where employees are proud to work, and where customers, suppliers and partners want to work with us. One of our most valuable assets is our integrity. We are guided by our core values of growth and profitability; outstanding global teamwork; relentless innovation and edge, making and meeting commitments; respecting and developing our people; and serving our community.

We are focused on hiring, training, and retaining exceptional talent. As of December 31, 2021, we had approximately 573 full-time employees, of whom 352 are located outside the United States. We have not experienced any work stoppages, and we consider our relationship with our employees to be good. We have a broad base of diverse talent in more than 20 countries and we believe that attracting, developing and retaining the best talent is critical to our success and achievement of our strategic objectives.

We appreciate one another's differences and strengths and are proud that our workforce comprises employees with a diversity of backgrounds and perspectives. Diversity, inclusion and belonging have long been a part of our culture, and we work to continually expand our diversity, inclusion and belonging initiatives and to conform to the principles of equal opportunity. We do not discriminate based on race, religion, national origin, disability, medical condition, marital status, sex, gender, age, military or veteran status, sexual orientation or any other protected characteristic as established by federal, state or local laws. Further, we have policies in place that prohibit harassment of all kinds and we prohibit retaliation in all forms and are committed to encouraging a culture where employees can freely ask questions and raise concerns.

Although we are working in both remote and hybrid environments as a result of the COVID-19 pandemic, we work collaboratively, without hierarchy, and our management team is readily available to all employees, with additional quarterly global town hall events that allow for open question and answer dialogue.

We offer what we believe is a competitive compensation package, tailored to the job function and geography of each employee. Our team is global, and we offer competitive and meaningful compensation and benefits programs that meet the diverse needs of our employees, while also reflecting local market practices. We believe our compensation structure aligns with our shareholders' long-term interests by balancing profitability and growth, as well as current market practices, and reflects our commitment to pay for performance. Competition for qualified personnel in the technology space is intense, and our success depends in large part on our ability to recruit, develop and retain a productive and engaged workforce. Accordingly, investing in our employees and their well-being, offering competitive compensation and benefits, promoting diversity and inclusion, adopting progressive human capital management practices and community outreach constitute core elements of our corporate strategy. In addition to competitive salaries and bonuses or sales commissions, we offer a robust employment total rewards package that promotes employee well-being and includes health care, extended parental leave, and paid time off, including extended leave for new parents (moms, dads and partners) to care for a newborn or newly adopted child.

We also offer rewards and recognition programs to our employees, including peer-led recognition of employees who best exemplify our values. We believe that these recognition programs help drive strong employee performance. We conduct annual employee performance reviews, where each employee is evaluated by their manager as well as a self-assessment. Employee performance is assessed based on a variety of key performance metrics, including the achievement of corporate objectives and objectives specific to the employee's department or role.

We grant equity-based compensation to many of our employees and have extended the opportunity for equity ownership through our recently launched employee share purchase plan in the United States, the United Kingdom and India, which we hope to extend to other jurisdictions in the future. Additionally, we offer benefits to support our employees' physical and mental health by providing tools and resources to help them improve or maintain their health and encourage healthy behaviors and facilitate a number of employee support groups.

Our Compensation Committee oversees our company-wide compensation programs and practices, and our Chief Executive Officer and Vice President of Human Resources regularly update our Board of Directors and the Compensation Committee on human capital matters.

COVID-19 Response

During the COVID-19 pandemic, our primary focus has been on the safety and well-being of our employees and their families. A large majority of our workforce worked remotely and successfully throughout most of 2021. Our offices are open on a voluntary basis for employees that have needed access to our offices, for example in order to use lab or test equipment, or who no longer wish to work from home, and for access we have followed the advice and recommendations of medical experts to maintain protocols to ensure the safety of our employees, including face coverings, health certifications, social distancing and capacity limits.

Available information

Our Internet address is www.cambiumnetworks.com and our investor relations website is located at http://investors.cambiumnetworks.com. We make available free of charge on our investor relations website under the sub-heading “Financials” our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports as soon as reasonably practicable after such materials are electronically filed with (or furnished to) the SEC. Information contained on our websites is not incorporated by reference into this Annual Report on Form 10-K. In addition, the public may read and copy materials we file with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an Internet site, www.sec.gov, that includes filings of and information about issuers that file electronically with the SEC.

Item 1A. Risk Factors.

This Report contains forward-looking statements that are subject to risks and uncertainties that could cause actual results to differ materially from those projected. These risks and uncertainties include, but are not limited to, the risk factors set forth below. These risks and uncertainties are not the only ones we face. Our business, financial condition, results of operations or prospects could also be harmed by risks and uncertainties not currently known to us or that we currently do not believe are material. If any of the risks actually occur, our business, financial condition, results of operations and prospects could be adversely affected.

Risks related to our business

Our operating results can be difficult to predict and may fluctuate significantly, which could result in a failure to meet investor expectations or our guidance and a decline in the trading price of our shares.

Our quarterly and annual operating results have fluctuated in the past and may fluctuate significantly in the future. In particular, the timing and size of our sales of our products are difficult to predict and can result in significant fluctuations in our revenues from period to period. For instance, we have historically received and fulfilled a substantial portion of sales orders and generated a substantial portion of revenues during the last few weeks of each quarter. In addition, we generally recognize all product revenues in the same period in which the related products are sold. Because our operating results are relatively fixed in the short term, any failure to meet expectations regarding sales could have an immediate and material effect on our earnings. If our revenues or operating results fall below the expectations of investors or securities analysts or below any estimates we may provide to the market, the trading price of our shares would likely decline, which could have a material and adverse impact on investor confidence and employee retention.

Our operating results may fluctuate due to a variety of factors, many of which are outside of our control, and which we may not foresee. In addition to other risks listed in this “Risks Factors” section, factors that may affect our operating results include:

- Fluctuations in demand for our products, including seasonal variations;
- The impact of COVID-19 and other health crises or pandemics on our operations;
- Our failure to timely fulfill orders for our products, which may be due to a number of factors, including the inability of our third-party manufacturers and suppliers to meet our demand, including as a result of component or part shortages or delays, or logistical failures in warehousing and shipping products;
- Failure of our distributors and channel partners to effectively promote and sell our products or manage their inventory and fulfillment;
- Our ability to control costs, including our manufacturing and component costs and operating expenses;
- Our ability to develop, introduce and ship in a timely manner new products and product enhancements, and to anticipate future market demands, as well as the impact of logistic delays and cost increases on our product shipments;
- Changes in the competitive dynamics of our target markets, including new entrants, consolidation and pricing pressures;
- The inherent complexity, length and associated unpredictability of the sales cycles for our products;
- Announcements made by us or our competitors of new or enhanced products, promotions or other transactions;
- Variation in product costs, prices or mix of products we sell;
- Product quality issues that could result in increases in product warranty costs and harm to our reputation and brand;
- Cyber-attacks, data breaches or malware that may disrupt our operations, harm our operating results and financial condition, and damage our reputation or otherwise materially harm our business;
- The impact of vulnerabilities and critical security defects, prioritization decisions regarding remedying vulnerabilities or security defects, failure of third-party providers to remedy vulnerabilities or security defects, or customers not deploying security releases or deciding not to upgrade products;
- Regulatory uncertainty or changes that may be applicable to or impact our products and services;
- General economic or political conditions in our markets; and
- Increasing uncertainty of international trade relations and tariffs.

The effects of these or other factors individually or in combination could result in fluctuations and unpredictability in our operating results, our ability to forecast those results and the trading price of our shares. As a result, our past results should not be relied upon as an indication of our future performance.

The introduction of new products and technology is key to our success, and if we fail to predict and respond to emerging technological trends and network operators' changing needs, we may be unable to remain competitive.

The wireless broadband market is generally characterized by rapidly changing technology, changing needs of network operators, evolving regulations and industry standards and frequent introductions of new products and services. Historically, new product introductions have been a key driver of our revenue growth. To succeed, we must effectively anticipate and adapt in a timely manner to network operator requirements and continue to develop or acquire new products and features that meet market demands, technology trends and evolving regulatory requirements and industry standards. Our ability to keep pace with technological developments, such as 5G, Wi-Fi 6, and LTE, satisfy increasing network operator requirements, and achieve product acceptance depends upon our ability to enhance our current products and develop and introduce or otherwise acquire the rights to new products on a timely basis and at competitive prices. The process of developing new technology is complex and uncertain, and the development of new products and enhancements typically requires significant upfront investment, which may not result in material improvements to existing products or result in marketable new products or cost savings or revenues for an extended period of time, if at all. We are currently investing in the development of products and technology for the 5G standard once it is generally adopted in our target markets. There can be no assurance we will successfully address the new standard in a timely manner or that our products will achieve market acceptance. Network operators have delayed, and may in the future delay, purchases of our products while awaiting release of new products or product enhancements. In addition, the introduction of new or enhanced products requires that we carefully manage the transition from older products to minimize disruption in channel partner ordering practices. If we fail to anticipate industry trends and evolving regulations by developing or acquiring rights to new products or product enhancements and timely and effectively introducing such new products and enhancements, or network operators do not perceive our products to have compelling technological advantages, our business would be adversely affected.

Competitive pressures may harm our business, revenues, growth rates and market share.

We generate a majority of our revenues from sales to wireless internet service providers. The market for wireless broadband products is rapidly evolving, highly competitive and subject to rapid technological change. We expect competition to persist, intensify and increase.

In all our markets, we compete with a number of wireless equipment providers worldwide that vary in size and in the products and solutions offered. Our competitors for products and solutions for the unlicensed, sub-6 GHz spectrum bands include Ubiquiti, Airspan, Radwin, MikroTik, Ligowave, and HFCL Group. Our 60 GHz cnWave mmWave product competes with Siklu, Radwin, and MikroTik, among others. Our recently announced 28 GHz cnWave product competes with Intracom, Nokia and Samsung. In the licensed microwave markets, our competitors include SIAE, SAF Tehnica and Aviat Networks, among others. Our Wi-Fi products and solutions compete with Aruba (HPE), Ruckus (CommScope), Extreme Networks, Ubiquiti and Meraki (Cisco). Our cnReach IIoT products and solutions compete principally with GE MDS and Freewave. Our cnMatrix cloud-managed switch platform competes with Ubiquiti, Ruckus (CommScope), Aruba (HPE) and MikroTik. Our cnMatrix Ethernet enterprise switching products and solutions compete with MikroTik, Ubiquiti, and Aruba (HPE). As our target markets continue to develop and expand, and as the technology for wireless broadband continues to evolve, we expect competition to increase.

Demand for our solutions versus those of our competitors is influenced by a variety of factors, including the following:

- Product quality, performance, features and functionality, and reliability;
- Depth and breadth of the sales channel;
- Brand awareness and reputation;
- Total cost of ownership and return on investment associated with the products;
- Ease of configuration, installation and use of the products;
- Ability to provide a complete compatible and scalable solution;
- Broad application across a range of use cases;
- Ability to allow centralized management of the products and network to better enable network planning, including scalable provisioning, configuration, monitoring and complete network visualization; and
- Strength, quality and scale of pre- and post-sales product support.

We expect increased competition from our current competitors, as well as emerging companies and established companies that may enter our markets. Further, we have in the past and may again experience price competition from lower cost vendors selling to network operators that have lower budget or less demanding applications than our products have been designed to serve. We also expect that even higher cost competitors may engage in price competition to establish greater market share, which may adversely affect our ability to grow our revenues and profitability. Competition could result in loss of market share, increased pricing pressure, reduced profit margins, or increased sales and marketing expense, any of which would likely cause serious harm to our business, operating results or financial condition.

A number of our current or potential competitors have longer operating histories, greater name recognition, significantly larger customer bases and sales channels and significantly greater financial, technical, sales, marketing and other resources than we do. Our competitors may be able to anticipate, influence or adapt more quickly to new or emerging technologies and changes in network operator requirements, devote greater resources to the promotion and sale of their products and services, initiate or withstand substantial price competition, bundle similar products to compete, take advantage of acquisitions or other opportunities more readily, and develop and expand their product and service offerings more quickly than we can.

Some of our competitors have been acquired or entered into partnerships or other strategic relationships to offer a more comprehensive solution than they had previously offered. We expect this trend to continue. The companies resulting from such consolidation may create more compelling products and be able to offer greater pricing flexibility, making it more difficult for us to compete effectively. In addition, continued industry consolidation might adversely affect network operators' perceptions of the viability of smaller and even medium-sized wireless broadband equipment providers and, consequently, network operators' willingness to purchase from those companies.

Additionally, the markets for development, distribution and sale of our products are rapidly evolving. New entrants seeking to gain market share by introducing new technology and new products may make it more difficult for us to sell our products, and could create increased pricing pressure, reduced profit margins due to increased expenditure on sales and marketing, or the loss of market share or expected market share, any of which may significantly harm our business, operating results and financial condition. The success of new products depends on several factors, including appropriate new product definition, component costs, timely completion and introduction of products, differentiation of new products from those of our competitors and market acceptance of these products. We may not be able to successfully anticipate or adapt to changing technology on a timely basis, or at all. New technologies could render our existing products less attractive and if such technologies are widely adopted as the industry standard for wireless Internet service providers, our business financial condition, results of operations and prospects could be materially adversely affected.

We face risks related to actual or threatened health epidemics and other outbreaks, which could significantly disrupt our manufacturing, sales and other operations.

Our business could be adversely impacted by the effects of a widespread outbreak of contagious disease, such as COVID-19. A pandemic or other health crisis such as the recent COVID-19 pandemic could impact our supply operations; for example, if any of our suppliers cease operating, causing us to move production to an alternate supplier. In addition, constraints on supply operations as a result of a pandemic such as COVID-19 could result in component part shortages due to global capacity constraints, such as the current global capacity constraint we are facing in the supply of component parts, particularly of chipsets and other semiconductor components. Such a constraint could and has caused lead times for our products to increase. In an effort to halt the outbreak of a pandemic such as COVID-19, governments may place significant restrictions on travel, such as the restrictions placed by the Chinese government on travel within China, leading to extended business closures, including closures at our third-party manufacturers. Although most of the restrictions on operations of our third-party manufacturers and other suppliers as a result of COVID-19 have been lifted or eased, our suppliers and third-party manufacturers could continue to be disrupted by worker absenteeism, quarantines, office and factory closures, disruptions to ports and other shipping infrastructure, or other travel or health-related restrictions and such restrictions could spread to other locations where we outsource manufacture or distribution of our products if the virus and its variants continues to spread or resurge. If our supply chain operations are affected or are curtailed by the outbreak of diseases such as COVID-19, our supply chain, manufacturing and product shipments will be delayed, which could adversely affect our business, operations and customer relationships. We may need to seek alternate sources of supply which may be more expensive, unavailable or may result in delays in shipments to us from our supply chain and subsequently to our customers. Further, if our distributors' or end user customers' businesses are similarly affected, they might delay or reduce purchases from us, which could adversely affect our results of operations.

In addition, freight and logistics constraints caused in part by restrictions imposed by governments to combat the COVID-19 pandemic and additionally due to container and carriage shortages, have resulted in increased costs and constrained available transport, for us and our channel partners, all at a time when global demand has increased. If our supply chain operations continue to be affected or are curtailed by the outbreak of diseases such as COVID-19, our supply chain, manufacturing and product shipments will be delayed, which could adversely affect our business, operations and customer relationships. We have sought and may continue to seek alternate sources of supply which may be more expensive, unavailable or may result in delays in shipments to us and from our supply chain and subsequently to our customers.

We are conducting business with substantial modifications to employee travel, employee work locations, and virtualization or cancellation of certain sales and marketing events, among other modifications. Our business is highly dependent on travel of our sales, operations, quality and technical support, and other managers and employees. Limitations placed on travel globally could significantly limit our ability to market our products, establish relationships with new customers, and manage post-contract support and maintenance activities. Other companies as well as many governments have imposed significant restrictions on business operations and other precautionary and preemptive actions to address COVID-19, and they may take further actions that cause us or our customers or suppliers to alter their normal business operations. We will continue to actively monitor the situation and may take further actions that alter our business operations as may be required by federal, state or local authorities, or that we determine are in the best interest of our employees, customers, partners, suppliers and shareholders. Any such alterations or modifications may adversely impact our business, our customers and prospects, or our financial results.

The extent to which the COVID-19 pandemic or any other pandemic will impact our business and financial results going forward will be dependent on future developments such as the length and severity of the crisis, the potential resurgence of COVID-19 or other pandemic and its variants in the future, future government actions in response to the crisis, the acceptance and effectiveness of the COVID-19 vaccines and the overall impact of the COVID-19 pandemic on the global economy and capital markets, among many other factors, all of which remain highly uncertain and unpredictable. We cannot at this time quantify or forecast the business impact of COVID-19, and there can be no assurance that the COVID-19 pandemic or other health crisis will not have a material and adverse effect on our business, financial results and financial condition.

We require third-party components, including components from limited or sole source suppliers, to build our products. The unavailability of these components could substantially disrupt our ability to manufacture our products and fulfill sales orders.

We rely on third-party components to build our products, and we rely on our third-party manufacturers to obtain the components necessary for the manufacture of our products. If we underestimate our requirements or our third-party suppliers are not able to timely deliver components, our third-party manufacturers may have inadequate materials and components required to produce our products. This could result in an interruption in the manufacture of our products, delays in shipments and deferral or loss of revenues.

We have in the past and may in the future experience shortages in available supply of required components. For example, as a result of increased global demand for some components used in our products, particularly semiconductor-related components and including components provided by Qualcomm, foundries have experienced capacity shortages and have responded by allocating existing supply among their customers, including us. This capacity shortage, coupled with an increase in demand for our affected products, due in part to a global increase in demand for bandwidth has resulted in supply shortages that have caused increased lead times for some of our products. Unpredictable price increases for such components may also occur. We and our third-party manufacturers generally rely on purchase orders rather than long-term contracts with suppliers of required components. As a result, our third-party manufacturers may not be able to secure sufficient components at reasonable prices or of acceptable quality to build our products in a timely manner, adversely impacting our ability to meet demand for our products. In addition, if our component suppliers cease manufacturing needed components, we could be required to redesign our products to incorporate components from alternative sources or designs, a process which would cause significant delays in the manufacture and delivery of our products.

We currently depend on a limited number of suppliers for several critical components for our products, and in some instances, we use sole or single source suppliers for our components to simplify design and fulfillment logistics. Neither we nor our third-party manufacturers carry substantial inventory of our product components. Many of these components are also widely used in other product types, such as components provided by Qualcomm. Shortages, such as those we are currently experiencing, are possible and our ability to predict the availability of such components may be limited. In the event of a shortage or supply interruption from our component suppliers, we or our third-party manufacturers may not be able to develop alternate or second sources in a timely manner, on commercially reasonable terms or at all, and the development of alternate sources may be time-consuming, difficult and costly. Suppliers allocating their existing short supplies may allocate an insufficient quantity of supplies to us which would result in delays in lead times for manufacture of our products and our inability to timely meet customer demand for our products. Any resulting failure or delay in shipping products could result in lost revenues and a material and adverse effect on our operating results.

Some of the key components in our products come from sole or limited sources of supply, and we are therefore susceptible to supply shortages, extended lead times or supply changes, which could disrupt or delay our scheduled product deliveries to our end customers and may result in the loss of sales and end customers.

We purchase components, directly or through our contract manufacturers, from third parties that are necessary for the manufacture of our products and do not control the supply of these necessary components. Our ability to manage our supply chain may be adversely affected by factors including shortages of, and extended lead times for, components used to manufacture our products, a reduction or interruption of supply, prioritization of component shipments to other vendors, cessation of manufacturing of such components by our suppliers and geopolitical conditions such as the U.S. trade war with China and the impact of public health epidemics like the COVID-19 pandemic. Insufficient component supply, or any increases in the time required to manufacture our products, have and may continue to lead to inventory shortages that could result in increased customer lead times for our products, delayed revenue or loss of sales opportunities altogether as potential end customers turn to competitors’ products that are more readily available. Shortages in the supply of components or other supply disruptions, including, without limitations, due to reductions in supply as a result of COVID-19 or as a result of the current global shortage of chipsets and other semiconductor components, may not be predicted in time to design-in different components or qualify other suppliers. Qualifying new suppliers to compensate for such shortages may be time-consuming and costly and may increase the likelihood of errors in design or production. Similar delays may occur in the future.

Certain components are currently and may in the future be in short supply. In particular, semiconductor chips and merchant silicon and semiconductor related components are currently in high demand with limited supply, which is resulting in significantly longer than usual lead times and significantly increased costs for these components. We have encountered, and are likely in the future to encounter, shortages and delays in obtaining these or other components, and this has and could continue to have a material adverse effect on our ability to meet customer orders and cause our revenues to decline. In addition, such shortages or delays have and could continue to result in increased component and delivery costs.

We use our forecast of expected demand to determine our material requirements. Lead times for materials and components we order vary significantly, and depend on factors such as the specific supplier, contract terms and demand for a component at a given time. If forecasts exceed orders, we may have excess and/or obsolete inventory, which could have a material adverse effect on our business, operating results and financial condition. If orders exceed forecasts, or available supply, we may have inadequate supplies of certain materials and components, which could have a material adverse effect on our ability to meet customer delivery requirements and to recognize revenue. If we are unable to pass component price increases along to our end customers or maintain stable pricing, our gross margins could be adversely affected and our business, financial condition, results of operations and prospects could suffer.

In order to reduce manufacturing lead times and plan for adequate component supply, from time to time, we may issue purchase orders for components and products that are non-cancelable and non-returnable. In addition, we may purchase components and products that have extended lead teams to ensure adequate supply to support long-term customer demand and mitigate the impact of supply disruptions. If we are unable to use all of the components we have purchased, we may have excess inventory or obsolescence, or increased inventory or carrying costs, which could have an adverse impact on our results of operation or financial condition.

We may face increased costs or other logistics challenges in the shipment of our products, which may increase cost of revenues or result in a delay of shipments to customers.

Logistics challenges have and may continue to impact our operations, as a result of container shortages which have and may continue to lengthen availability of containers and increased carriage costs, resulting in increases in relevant freight costs, all at a time when global demand has increased. Ports have and may continue to experience increasing lead times with delays in the container freight market as port delays, worker shortages and the impact of COVID-19 impact the ability to import and export goods, particularly from China, resulting in an increase in logistics and freight costs. These logistics and freight challenges and increasing costs could have a material adverse effect on our ability to meet customer delivery requirements, result in increased costs and adversely affect our business, financial condition, results of operations and prospects.

We rely on third-party manufacturers, which subjects us to risks of product delivery delays and reduced control over product costs and quality.

We outsource the manufacturing of our products to third-party manufacturers pursuant to which the third parties manufacture and supply our products subject to orders from us often based on our demand forecasts. For certain products, we do most of the design work, and on others we rely on third-party manufacturers to design products (in whole or in part) to our specifications and license those designs back to us. Other products we acquire from third parties who have wholly designed and manufactured and distribute and sell these products on a white label basis. Our reliance on third-party manufacturers reduces our control over the manufacturing process, including reduced control over quality, product costs and product supply and timing. From time to time, we have experienced and may in the future experience delays in shipments or issues concerning product quality from our third-party manufacturers. If any of our third-party manufacturers suffer interruptions, delays or disruptions in supplying our products, including by natural disasters or work stoppages or capacity constraints, our ability to ship products to distributors and network operators would be delayed. Additionally, if any of our third-party manufacturers experience quality control problems in their manufacturing operations and our products do not meet network operators' requirements, we could be required to cover the repair or replacement of any defective products. These delays or product quality issues could have an immediate and material adverse effect on our ability to fulfill orders and could have a negative impact on our operating results. In addition, such delays or issues with product quality could harm our reputation and our relationship with our channel partners.

Our agreements do not typically obligate our third-party manufacturers to supply products to us in specific quantities or for an extended term, which could result in short notice to us of supply shortages and increases in the prices we are charged for manufacturing services. We believe that our orders may not represent a material portion of the total orders of our primary third-party manufacturers, and, as a result, fulfilling our orders may not be prioritized in the event they are constrained in their abilities or resources to fulfill all of their customer obligations in a timely manner. Although we provide demand forecasts to some of our third-party manufacturers, such forecasts are not generally binding and if we overestimate our requirements, some of our third-party manufacturers may assess charges, or we may have liabilities for excess inventory, each of which could negatively affect our gross margins. Conversely, because lead times for required materials and components vary significantly and depend on factors such as the specific supplier, contract terms and the demand for each component at a given time, if we underestimate our requirements, our third-party manufacturer may have inadequate materials and components required to produce our products. This could result in an interruption of the manufacturing of our products, delays in shipments and deferral or loss of revenues. For example, as a result of increased global demand for some components used in our products, particularly semiconductor-related components, foundries have experienced capacity shortages and have responded by allocating existing supply among their customers, including us. This capacity shortage coupled with an increase in demand for our affected products, due in part to a global increase in demand for bandwidth has resulted in supply shortages that have caused increased lead times for some of our products. We may suffer delays introducing new products to the market and in sales of existing products as a result of parts unavailability or shortages, resulting in loss or delay of revenue.

If our third-party manufacturers experience financial, operational, manufacturing capacity or other difficulties, or experience or continue to experience shortages in required components, or if they are otherwise unable or unwilling to continue to manufacture our products in required volumes or at all, our supply may be disrupted, we may be required to seek alternate manufacturers and we may be required to re-design our products. It would be time-consuming and costly, and could be impracticable, to begin to use new manufacturers and designs and such changes could cause significant interruptions in supply and could have an adverse impact on our ability to meet our scheduled product deliveries and may subsequently lead to the loss of sales, delayed revenues or an increase in our costs, which could materially and adversely affect our business and operating results.

We outsource manufacturing to third-party manufacturers operating outside of the U.S., subjecting us to risks of international operations.

Our third-party manufacturers predominantly operate outside of the U.S. causing us to face risks to our business based on changes in tariffs, trade barriers, export regulations, political conditions and contractual restrictions. For example, our cost of goods in the Wi-Fi and switch products, as well as most of our ePMP products, has been adversely affected by U.S. tariffs on goods produced for us in China and later imported into the United States. Our products manufactured in China and elsewhere may also be adversely affected by the outbreak of diseases such as COVID-19, if such diseases result in delays, shutdowns or other restrictions on our manufacturing processes by our third-party manufacturers, or on our ability to distribute products from our distribution centers. Products that we have manufactured for us in China, Mexico, and elsewhere may also be subject to any uncertainty of trade relations between such countries and the United States, which could cause the cost of our products manufactured there to rise, or result in our inability to continue to manufacture in such country, resulting in a need to find alternative sources of manufacture, which could result in the delay of manufacture and supply of our products, increase our cost of manufacture, and cause a delay in our shipments to customers and a delay or cancellation of orders. Our future operating results and financial condition could be materially affected to the extent any of these actions occur.

We rely on distributors and value-added resellers for the substantial majority of our sales, and the failure of our channel partners to promote and support sales of our products would materially reduce our expected future revenues.

We rely on channel partners for a substantial majority of our sales and our future success is highly dependent upon establishing and maintaining successful relationships with distributors and value-added resellers. Recruiting and retaining qualified channel partners and training them in our technology and products require significant time and resources. Our reliance on channel partners for sales of our products results in limited visibility into demand and channel inventory levels which in turn adversely impacts our ability to accurately forecast our future revenues. By relying on our channel partners, we may have less contact with network operators, thereby making it more difficult for us to establish brand awareness, service ongoing network operator requirements and respond to evolving needs for new product functionality.

Sales through distributors have been highly concentrated in a few distributors, with over 36%, 41%, and 41% of our revenues in 2019, 2020 and 2021, respectively, coming from our three largest distributors. In addition, certain of our distributors may rely disproportionately on sales to a small number of end customers. Termination or degradation of a relationship with a major distributor, or of a distributor with its major customer, could result in a temporary or permanent material loss of revenues. We may not be successful in finding other distributors on satisfactory terms, or at all, and our distributors may fail to maintain or replace business with their major customer, either of which could adversely affect our ability to sell in certain geographic markets or to certain network operators, adversely impacting our revenues, cash flow and market share.

We generally do not require minimum purchase commitments from our channel partners, and our agreements do not prohibit our channel partners from offering products or services that compete with ours or from terminating our contract on short notice. Many of our channel partners also sell products from our competitors. Some of our competitors may have stronger relationships with our channel partners than we do and we have limited control, if any, over the sale by our channel partners of our products instead of our competitors' products, or over the extent of the resources devoted to market and support our competitors' products, rather than our products or solutions. Our competitors may be more effective in providing incentives to existing and potential channel partners to favor their products or to prevent or reduce sales of our products. Our failure to establish and maintain successful relationships with our channel partners would materially and adversely affect our business, operating results and financial condition.

Our revenue growth rate in recent periods may not be indicative of our future performance.

Our revenue growth rate in recent periods may not be indicative of our future performance. For example, our revenues grew 10.4% from 2018 to 2019, 4.3% from 2019 to 2020 and 20.6% from 2020 to 2021. Accordingly, we may not achieve similar revenue growth rates of our earlier years in future periods. Our revenues for any prior annual period may not be an indication of our future revenues or revenue growth. If we are unable to maintain consistent revenues or revenue growth, our operating results and the trading price of our shares could be materially affected.

Our third-party logistics and warehousing provider may fail to deliver products to our channel partners and network operators in a timely manner, which could harm our reputation and operating results.

We rely on our third-party logistics and warehousing provider, with distribution hubs in the United States, the Netherlands and China, to fulfill the majority of our worldwide sales and deliver our products on a timely basis. Any delay in delivery of our products to distributors or network operators could create dissatisfaction, harm our reputation, result in the loss of future sales and, in some cases, subject us to penalties. We rely on our third-party logistics and warehousing provider to accurately segregate and record our inventory for us and to report to us the receipt and shipments of our products. Our third-party logistics and warehousing provider also manages and tracks the delivery of our products from the warehouse and safeguards our inventory, which accounts for a vast majority of our inventory balance. The failure of our third-party logistics and warehousing provider to perform these key tasks sufficiently, or the disruption to its business as a result of restrictions imposed as a result of COVID-19 or other health crises, natural disasters, work stoppages, cyber attacks or other business disruptions, could disrupt their operations and therefore the shipment of our products to distributors and network operators or cause errors in our recorded inventory or in our customs or other regulatory documentation, any of which could adversely affect our business and operating results.

Our ability to sell our products is highly dependent on the quality of our support and services offerings, and our failure to offer high-quality support and services could have a material adverse effect on our business, operating results and financial condition.

Network operators rely on our products for critical applications and, as such, high-quality support is critical for the successful marketing and sale of our products. If we or our channel partners do not provide adequate support to network operators in deploying our products or in resolving post-deployment issues quickly, our reputation may be harmed and our ability to sell our products could be materially and adversely affected.

If we or our distributors and channel partners are unable to attract new network operators or sell additional products to network operators that currently use our products, our revenue growth would be adversely affected, and our revenues could decrease.

To increase our revenues, we depend on the adoption of our solutions by network operators that purchase our products through our channel partners. Network operators typically need to make substantial investments when deploying network infrastructure, which can delay a purchasing decision. Once a network operator has deployed infrastructure for a particular portion of its network, it is often difficult and costly to switch to another vendor's equipment. If we or our channel partners are unable to demonstrate that our products offer significant performance, functionality or cost advantages to the competitor's product, it would be difficult for us to generate sales to that network operator once a competitor's equipment has been deployed.

Our future success also depends significantly on additional purchases of our products by network operators that have previously purchased our products. Network operators may choose not to purchase additional products because of several factors, including dissatisfaction with our products or pricing relative to competitive offerings, reductions in network operators' spending levels or other causes outside of our control. If we are not able to generate repeat purchases from network operators, our revenues may grow more slowly than expected or may decline, and our business and operating results would be adversely affected.

Our gross margin varies from period to period and may decline in the future.

Our gross margin varies from period to period, may be difficult to predict and may decline in future periods. Variations in our gross margin are generally driven by shifts in the mix of products we sell, the timing and related cost of fulfilling orders and other factors. In addition, the market for wireless broadband solutions is characterized by rapid innovation and declining average sale prices as products mature in the marketplace. The sales prices and associated gross margin for our products may decline due to change in sales strategy, competitive pricing pressures, demand, promotional discounts and seasonal changes in demand. Larger competitors with more diverse product and service offerings may reduce the price of products or services that compete with ours or may bundle them with other products and services. If we meet such price reductions but do not similarly reduce our product manufacturing costs, our margins would decline. Any decline in our gross margins could have an adverse impact on the trading price of our shares.

Our products are technologically complex and may contain undetected hardware defects or software bugs, or subject our products to ransomware or other cyber attacks which could result in increased warranty claims, increased costs, loss of revenues and harm to our reputation.

Our products are technologically complex and, when deployed, are critical to network operations. Our products rely on our proprietary embedded software, and have in the past contained and may in the future contain undetected errors, bugs or security vulnerabilities, or suffer reliability or quality issues. Some defects in our products may only be discovered after a product has been installed and used by network operators. Any errors, bugs, defects, security vulnerabilities or quality or reliability issues discovered in our products after commercial release could result in increased warranty claims, damage to our reputation and brand, loss of market shares or loss of revenues, any of which could adversely affect our business, operating results and financial condition. In addition, our products operate in part in outdoor settings and must withstand environmental effects such as severe weather, lightning or other damage. Our products may also contain latent defects and errors from time to time related to embedded third-party components.

We have in the past and may in the future become subject to warranty claims that may require us to make significant expenditures to repair or replace defective products, or redesign our products to eliminate product vulnerabilities. We may in the future also be the subject of product liability claims. Such claims could require a significant amount of time and expense to resolve and defend against and could harm our reputation by calling into question the quality of our products. We also may incur costs and expenses relating to a recall of one or more of our products. The process of identifying recalled products that have been widely distributed may be lengthy and require significant resources and we may incur significant replacement costs, contract damage claims from network operators and harm to our reputation. Additionally, defects and errors may cause our products to be vulnerable to security attacks, cause them to fail to help secure networks or temporarily interrupt network traffic. Although we disclaim responsibility for certain warranty and product liability claims as well as product recalls or security problems, any substantial costs or payments made in connection with warranty and product liability claims, product recalls or security problems could cause our operating results to decline and harm our brand.

If our channel partners do not effectively manage inventory of our products, fail to timely resell our products or overestimate expected future demand, they may reduce purchases in future periods, causing our revenues and operating results to fluctuate or decline.

Our channel partners purchase and maintain inventories of our products to meet future demand and have only limited rights to return the products they have purchased from us. Our channel partners are not generally committed to volume purchases of our products in any period, although some of our products carry minimum order quantities. Accordingly, if our channel partners purchase more product than is required to meet demand in a particular period, causing their inventory levels to grow, they may delay or reduce additional future purchases, causing our quarterly results to fluctuate and adversely impacting our ability to accurately predict future earnings.

If we are not able to effectively forecast demand or manage our inventory, we may be required to record write-downs for excess or obsolete inventory.

We maintain inventory of finished goods and, to a lesser extent, raw materials that we believe are sufficient to allow timely fulfillment of sales, subject to the impact of supply shortages. Growth in our sales and new product launches may require us to build inventory in the future. Higher levels of inventory expose us to a greater risk of carrying excess or obsolete inventory, which may in turn lead to write-downs. We may also record write-downs in connection with the end-of-life for specific products. Decisions to increase or maintain higher inventory levels are typically based upon uncertain forecasts or other assumptions. Because the markets in which we compete are volatile, competitive and subject to rapid technology and price changes, if the assumptions on which we base these decisions turn out to be incorrect, our financial performance could suffer and we could be required to write-off the value of excess products or components inventory.

We are exposed to the credit risk of our channel partners, which could result in material losses.

We generate a substantial majority of our revenues through sales to our distributors. Distributors may not have the resources required to meet payment obligations, or may delay payments if their end customers are late making payments. Our exposure to credit risks of our channel partners and their end customers may increase if such entities are adversely affected by global or regional economic conditions. Given the broad geographic coverage of our distributor relationships, we have in the past and may in the future experience difficulties surrounding the collection of payments. Any significant delay or default in the collection of significant accounts receivable could result in the need for us to obtain working capital from other sources and could adversely impact our operating results and financial condition.

If we do not effectively deploy and train our direct sales force, we may be unable to increase sales.

Although we rely on channel partners to fulfill the substantial majority of our sales, our direct sales force plays a critical role driving our sales through direct engagement with network operators. We have invested and will continue to invest substantially in our sales organization. Our sales headcount has grown from 114 as of December 31, 2017 to 125 as of December 31, 2021, as we focus on growing our business, entering new markets and increasing our market share, and we expect to continue to incur significant expenses as we continue to invest in sales and marketing in order to achieve revenue growth. There is significant competition for sales personnel with the skills and technical knowledge that we require. Our ability to achieve significant revenue growth will depend, in large part, on our success in recruiting, training, retaining and integrating sufficient numbers of sales personnel to support our growth, particularly in international markets. New hires require significant training and may take significant time before they achieve full productivity. Our recent hires may not become productive as quickly as we expect, and we may be unable to hire and retain sufficient numbers of qualified individuals needed to increase our sales. If we are unable to hire and train a sufficient number of effective sales personnel, or the sales personnel we hire do not achieve expected levels of productivity, our business, operating results and financial condition could be materially adversely affected.

Our business and prospects depend on the strength of our brand. Failure to maintain and enhance our brand would harm our ability to increase sales by expanding our network of channel partners as well as the number of network operators who purchase our products.

Maintaining and enhancing our brand is critical to expanding our base of channel partners and the number of network operators who purchase our products. Maintaining and enhancing our brand will depend largely on our ability to continue to develop products and solutions that provide the high quality at attractive economics sought by network operators. If we fail to promote, maintain and protect our brand successfully, our ability to sustain and expand our business and enter new markets will suffer. Our brand may be impaired by a number of factors, including product failure and counterfeiting. If we fail to maintain and enhance our brand, or if we need to incur unanticipated expenses to establish the brand in new markets, our operating results would be negatively affected.

Our sales cycles can be long and unpredictable and our sales efforts require considerable time and expense. As a result, our sales and revenues are difficult to predict and may vary substantially from period to period.

Our sales efforts involve educating channel partners and network operators about the technical capabilities, applications and benefits of our products. Network operators typically require long sales cycles to select a product supplier and place sales orders. The sale process usually begins with an evaluation, followed by one or more network trials, followed by vendor selection and finally installation, testing and deployment. Network operator purchasing activity depends upon the stage of completion of expanding network infrastructures and the availability of funding, among other factors. We spend substantial time and resources on our sales efforts without any assurance that our efforts will produce any sales. In addition, purchases of our products are frequently subject to budget constraints, multiple approvals, and unplanned administrative, processing and other delays. Moreover, the evolving nature of the market may lead prospective network operators to postpone their purchasing decisions pending resolution of network standards or adoption of technology by others. Network operators may also postpone a purchase decision pending the release of new or enhanced products by us or others. As a result, it is difficult to predict whether a sale will be completed, the particular period in which a sale will be completed or the period in which revenues from a sale will be recognized. Our operating results may therefore vary significantly from quarter to quarter.

A portion of our revenues are generated by sales to government entities, which are subject to a number of challenges and risks.

We derive a portion of our revenues from contracts with government agencies and we believe the success and growth of our business will in part depend on our continued and increasing sales to U.S. and foreign, federal, state and local governmental end customers in the future. However, demand from government agencies is often unpredictable, and we may be unable to maintain or grow our revenues from this market. Sales to government agencies are subject to substantial risks, including but not limited to the following:

- selling to government agencies can be highly competitive, expensive and time-consuming, often requiring significant upfront time and expense without any assurance that such efforts will generate a sale;
- government entities may have statutory, contractual or other legal rights to terminate contracts with our channel partners or us for convenience or due to a default, and any such termination may adversely impact our future business, financial condition, results of operations and prospects;
- U.S. or other government certification requirements applicable to our goods and services may be difficult to meet, require an additional administrative or compliance burden on us not found in our commercial contracts, and if we are unable to meet these certification requirements, our ability to sell into the government sector may be adversely impacted until we have attained required certifications;

- government demand and payment for our services may be adversely impacted by public sector budgetary cycles and funding constraints;
- selling to government entities may require us to comply with various regulations that are not applicable to sales to non-government entities, including regulations that may relate to pricing, classified material and other matters, or requirements regarding the development and maintenance of programs such as small business subcontracting, or compliance with EEOC requirements. Complying with such regulations may also require us to put in place controls and procedures to monitor compliance with the applicable regulations that may be costly or not possible;
- the U.S. government may require certain products that it purchases be manufactured in the United States and other relatively high-cost manufacturing locations under Buy American Act or other regulations, and we may not manufacture all products in locations that meet these requirements, which may preclude our ability to sell some products or services; and
- governments may investigate and audit government contractors' administrative and financial processes and compliance with laws and regulations applicable to government contractors, and any unfavorable audit could result in fines, civil or criminal liability, damage to our reputation and suspension or debarment from further government business.

The occurrence of any of the foregoing could cause governments and governmental agencies to delay or refrain from purchasing our products in the future which could materially and adversely affect our operating results.

We generate a significant amount of revenues from sales outside of the United States, and we are therefore subject to a number of risks associated with international sales and operations.

We have extensive international operations and generate a significant amount of revenues from sales to channel partners in Europe, the Middle East and Africa, Asia-Pacific and South America. For example, sales outside of the United States accounted for 55% of our total revenues in 2019, 49% in 2020, and 51% in 2021. We rely on our third-party logistics and warehousing provider, with distribution hubs in the United States, the Netherlands and China to fulfill the majority of our worldwide sales and to deliver our products to our customers. We have estimated the geographical distribution of our product revenues based on the ship-to destinations specified by our distributors when placing orders with us. Our ability to grow our business and our future success will depend on our ability to continue to expand our global operations and sales worldwide.

As a result of our international reach, we must hire and train experienced personnel to manage our international operations. If we experience difficulties in recruiting, training, managing and retaining an international staff, and specifically staff related to sales management and sales personnel, we may experience difficulties expanding our sales outside of the United States. If we are not able to maintain these relationships internationally or to recruit additional channel partners, our future international sales could be limited. Business practices in the international markets that we serve may differ from those in the United States and may require us in the future to include terms other than our standard terms in contracts.

Our international sales and operations are subject to a number of risks, including the following:

- fluctuations in currency exchange rates, which could drive fluctuations in our operating expenses;
- required local regulatory certifications in each jurisdiction, which may be delayed for political or other reasons other than product quality or performance;
- requirements or preferences for domestic products, which could reduce demand for our products;
- differing technical standards, existing or future regulatory and certification requirements and required product features and functionality;
- management communication problems related to entering new markets with different languages, cultures and political systems;
- difficulties in enforcing contracts and collecting accounts receivable, and longer payment cycles, especially in emerging markets;
- heightened risks of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, and irregularities in, financial statements;
- difficulties and costs of staffing and managing foreign operations;
- the uncertainty of protection of intellectual property rights in some countries;
- potentially adverse tax consequences, including regulatory requirements regarding our ability to repatriate profits to the United Kingdom;

- requirements to comply with foreign privacy, information security, and data protection laws and regulations and the risks and costs of non-compliance;
- added legal compliance obligations and complexity;
- the increased cost of terminating employees in some countries;
- political and economic instability and terrorism; and
- the impact of the spread of any diseases globally that might impact our operations.

These and other factors could harm our ability to generate future international revenues. Expanding our existing international operations and entering into additional international markets will require significant management attention and financial commitments. Our failure to successfully manage our international operations and the associated risks effectively could limit our future growth or materially adversely affect our business, operating results and financial condition.

Economic conditions and regulatory changes following the United Kingdom's exit from the European Union could adversely impact our operations, operating results and financial condition.

The United Kingdom ceased to be a member of the European Union on January 31, 2020. An agreement governing the U.K.'s departure from the European Union, Brexit, was agreed to on December 24, 2020, but a "transition period" keeping most pre-departure arrangements in place ended on December 31, 2020. Accordingly, although an agreement on post-Brexit trade and future EU-UK relations (the Trade and Cooperation Agreement, was reached on December 24, 2020, and the formal ratification process was completed in April 2021, there continues to be uncertainty over some of the practical consequences of Brexit and as to its application, including as to the United Kingdom's trading policies with the EU and other countries as it issues new rules and regulations. The full effects of Brexit will depend on agreements the United Kingdom may make and rules and regulations it may issue concerning trading among the United Kingdom and to the European Union and other markets. Given the lack of comparable precedent, it is unclear what economic, financial, trade and legal implications the withdrawal of the United Kingdom from the European Union will have generally and how such withdrawal will affect us. The consequences of Brexit have brought legal uncertainty and increased complexity which could continue as national laws and regulations in the U.K. differ from EU laws and regulations and additional requirements come into effect in the U.K. and EU relating to testing, authorization, labeling and other requirements that may impact our ability to import, export and otherwise distribute our products, services, and solutions.

Brexit may, among other outcomes, disrupt the free movement of goods, services and people between the United Kingdom and the European Union, undermine bilateral cooperation in key geographic areas, disrupt the markets we serve, and significantly disrupt trade between the United Kingdom and the European Union or other nations as the United Kingdom pursues independent trade relations. Since we derive most of our revenues through our U.K. subsidiary, which owns our intellectual property, the consequences of Brexit, could adversely change our tax benefits or liabilities in certain jurisdictions and adversely impact our trade operations and our management of our export compliance from our Netherlands distribution hub. Our U.K. operations may be adversely affected as we become subject to new laws and regulations implemented in the U.K. as part of Brexit, including compliance with U.K. labor and other regulations as well as compliance with EU privacy laws. Brexit could also create uncertainty with respect to the legal and regulatory requirements over the operation of our products to which we and our network operators in the U.K. are subject and lead to divergent national laws and regulations as the U.K. government determines which EU laws to replace or replicate.

Compliance with new laws or regulations regarding trade, delivery and other cross-border activities between the United Kingdom and the European Union could be costly, negatively impacting our business, financial condition, operating results and cash flows.

A substantial portion of our product portfolio relies on the availability of unlicensed RF spectrum and if such spectrum were to become unavailable through overuse or licensing, the performance of our products could suffer and our revenues from their sales could decrease.

A substantial portion of our product portfolio operates in unlicensed RF spectrum, which is used by a wide range of consumer devices and is becoming increasingly crowded. If such spectrum usage continues to increase through the proliferation of consumer electronics and products competitive with ours, the resultant higher levels of noise in the bands of operation our products use could decrease the effectiveness of our products, which could adversely affect our ability to sell our products. Our business could be further harmed if currently unlicensed RF spectrum becomes licensed in the United States or elsewhere. Network operators that use our products may be unable to obtain licenses for RF spectrum. Even if the unlicensed spectrum remains unlicensed, existing and new governmental regulations may require we make changes in our products. For example, to provide products for network operators who utilize unlicensed RF spectrum, we may be required to limit their ability to use our products in licensed or otherwise restricted RF spectrum. The operation of our products by network operators in the United States or elsewhere in a manner not in compliance with local law could result in fines, operational disruption, or harm to our reputation.

The loss of key personnel or an inability to attract, retain and motivate qualified personnel may impair our ability to expand our business.

Our success is substantially dependent upon the continued service and performance of our senior management team and key technical, marketing and production personnel. Our employees, including our senior management team, are generally at-will employees, and therefore may terminate employment with us at any time with no advance notice. The replacement of any members of our senior management team or other key personnel likely would involve significant time and costs and may significantly delay or prevent the achievement of our business objectives.

Our future success also depends, in part, on our ability to continue to attract and retain highly skilled personnel. Competition for highly skilled personnel is frequently intense, particularly for highly skilled research and development personnel. Any failure to successfully attract or retain qualified personnel to fulfill our current or future needs may negatively impact our growth.

We may acquire other businesses which could require significant management attention, disrupt our business, dilute shareholder value and adversely affect our operating results.

To execute on our business strategy, we may acquire or make investments in complementary companies, products or technologies such as our August 2019 acquisition of the assets and liabilities of the Xirrus business from Riverbed Technology, Inc. Our integration of acquired businesses such as Xirrus may not be successful and we may not achieve the benefits of the acquisition. We may not be able to find suitable acquisition candidates, and we may not be able to complete such acquisitions on favorable terms, if at all. If we do complete additional acquisitions, we may not ultimately strengthen our competitive position or achieve our goals, and any acquisitions we complete could be viewed negatively by our channel partners, investors and financial analysts. In addition, if we are unsuccessful at integrating such acquisitions, or the technologies associated with such acquisitions, into our company, the revenues and operating results of the combined company could be adversely affected. Any integration process may require significant time and resources, and we may be unable to manage the process successfully. We may not successfully evaluate or utilize the acquired technology or personnel, or accurately forecast the financial impact of an acquisition transaction, including unexpected liability or accounting charges. We may pay cash, incur debt or issue equity securities to pay for any future acquisition, each of which could adversely affect our financial condition or the value of our shares. The sale of equity or issuance of debt to finance any such acquisitions could result in dilution to our shareholders. The incurrence of indebtedness would result in increased fixed obligations and could also include covenants or other restrictions that would impede our ability to manage our operations.

Risks related to our industry

New regulations or standards or changes in existing regulations or standards in the United States or internationally related to our products may result in unanticipated costs or liabilities, which could have a material adverse effect on our business, results of operations and future sales.

Our products are subject to governmental regulations in a variety of jurisdictions. To achieve and maintain market acceptance, our products must comply with these regulations as well as a significant number of industry standards. In the United States, our products must comply with various regulations defined by the Federal Communications Commission, or FCC, Underwriters Laboratories and others. We must also comply with similar international regulations, particularly those issued by the European Telecommunications Standards Institute, or ETSI, as such directives are or may be adopted as regulations by governments in member states. In addition, radio emissions, such as our products, are subject to health and safety regulation in the United States and in other countries in which we do business, including by the Center for Devices and Radiological Health of the Food and Drug Administration, the Occupational Safety and Health Administration and various state agencies. Member countries of the European Union have enacted similar standards concerning electrical safety and electromagnetic compatibility and emissions, and chemical substances and use standards. As these regulations and standards evolve, and if new regulations or standards are implemented, we could be required to modify our products or develop and support new versions of our products, and our compliance with these regulations and standards may become more burdensome. The failure of our products to comply, or delays in compliance, with the various existing and evolving industry regulations and standards could prevent or delay introduction of our products, which could harm our business. Foreign regulatory agencies may delay or fail to certify our products for political or other reasons other than product quality or performance. Network operator uncertainty regarding future policies may also affect demand for wireless broadband products, including our products. Our inability to alter our products to address these requirements and any regulatory changes may have a material adverse effect on our business, operating results and financial condition.

We are subject to governmental export and import controls that could impair our ability to compete in international markets and subject us to liability if we are not in compliance with applicable laws.

Our technology and products are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. customs regulations, the economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, and applicable U.K. and EU export and import laws and regulations. Exports, re-exports and transfers of our products and technology must be made in compliance with these laws and regulations. U.S., U.K. and EU export control laws and economic sanctions include a prohibition on the shipment of certain products and technology to embargoed or sanctioned countries, governments and persons. We take precautions to prevent our products and technology from being shipped to, downloaded by or otherwise transferred to applicable sanctions targets, but our products could be shipped to those targets by our channel partners despite such precautions. If our products are shipped to or downloaded by sanctioned targets in the future in violation of applicable export laws, we could be subject to government investigations, penalties and reputational harm. Certain of our products incorporate encryption technology and may be exported, re-exported or transferred only with the required applicable export license from the U.S. or the U.K. or through an export license exception.

If we fail to comply with applicable export and import regulations, customs and trade regulations, and economic sanctions and other laws, we could be subject to substantial civil and criminal penalties, including fines and incarceration for responsible employees and managers, and the possible loss of export or import privileges as well as harm our reputation and indirectly have a material adverse effect on our business, operating results and financial condition. In addition, if our channel partners fail to comply with applicable export and import regulations, customs regulations, and economic and sanctions and other laws in connection with our products and technology, then we may also be adversely affected, through reputational harm and penalties. Obtaining the necessary export license for a particular sale may be time-consuming, may result in the delay or loss of sales opportunities and approval is not guaranteed.

Any change in export or import, customs or trade and economic sanctions laws, and regulations, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations, could also result in decreased use of our products, or in our decreased ability to export or sell our products to existing or potential network operators with international operations. Any decreased use of our products or limitation on our ability to export or sell our products could affect our business, financial condition and results of operations.

We do business in countries with a history of corruption and transact business with foreign governments, which increases the risks associated with our international activities.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, the U.K. Bribery Act of 2010, and many other laws around the world that prohibit improper payments or offers or authorization of payments to governments and their employees, officials, and agents and political parties for the purpose of obtaining or retaining business, inducing an individual to not act in good faith, direct business to any person, or secure any advantage. We have operations, deal with and make sales to governmental entities in countries known to experience corruption, particularly certain emerging countries in Asia, Eastern Europe, the Middle East and South America. Our activities in these countries create the risk of illegal or unauthorized payments or offers of payments or other things of value by our employees, consultants or channel partners that could be in violation of applicable anti-corruption laws, including the FCPA. In many foreign countries where we operate, particularly in countries with developing economies, it may be a local custom for businesses to engage in practices that are prohibited by the FCPA or other similar laws and regulations. Although we have taken actions to discourage and prevent illegal practices including our anti-corruption compliance policies, procedures, training and monitoring, the actions taken to safeguard against illegal practices, and any future improvements in our anti-corruption compliance practices, may not be effective, and our employees, consultants or channel partners may engage in illegal conduct for which we might be held responsible. Violations of anti-corruption laws may result in severe criminal or civil sanctions, including suspension or debarment from government contracting, and we may be subject to other liabilities and significant costs for investigations, litigation and fees, diversion of resources, negative press coverage, or reputational harm, all of which could negatively affect our business, operating results and financial condition. In addition, the failure to create and maintain accurate books and records or the failure to maintain an adequate system of internal accounting controls may subject us to sanctions.

If we fail to comply with environmental requirements, our business, financial condition, operating results and reputation could be adversely affected.

We are subject to various environmental laws and regulations including laws governing the hazardous material content of our products and laws relating to the recycling of electrical and electronic equipment. The laws and regulations to which we are subject include the European Union's Restriction of Hazardous Substances Directive, or RoHS, and Waste Electrical and Electronic Equipment Directive, or WEEE, as implemented by EU member states. Similar laws and regulations exist or are pending in other regions, including in the United States, and we are, or may in the future be, subject to these laws and regulations.

RoHS restricts the use of certain hazardous materials, including lead, mercury and cadmium, in the manufacture of certain electrical and electronic products, including some of our products. We have incurred, and expect to incur in the future, costs to comply with these laws, including research and development costs, and costs associated with assuring the supply of compliant components.

Certain of our products are eligible for an exemption for lead used in network infrastructure equipment. If this exemption is revoked, or if there are other changes to RoHS (or its interpretation) or if similar laws are passed in other jurisdictions, we may be required to reengineer our products to use components compatible with these regulations. This reengineering and component substitution could result in additional costs to us or disrupt our operations or logistics.

WEEE requires producers of electrical and electronic equipment to be responsible for the collection, reuse, recycling and treatment of their products. Currently, our distributors generally take responsibility for this requirement, as they are often the importer of record. However, changes to WEEE and existing or future laws similar to WEEE may require us to incur additional costs in the future.

If we are unable to comply with these or similar laws or regulations, we could incur fines, penalties, restrictions on our ability to manufacture our products or restrictions or limitations on our ability to import or export our products to or from various jurisdictions.

Any failure to comply with current and future environmental laws could result in the incurrence of fines or penalties and could adversely affect the demand for or sales of our products.

Our business, operating results and financial condition could be materially harmed by regulatory uncertainty applicable to our products and services.

Changes in regulatory requirements applicable to our products, in the United States and in other countries, could materially affect the sales of our products and services. In addition, evolving legal requirements restricting or controlling the collection, processing, or cross-border transmission of data, including regulation of cloud-based services, could materially affect our customers' ability to use, and our ability to sell, our products and services. Additional areas of uncertainty that could impact sales of our products and offers include laws and regulations related to encryption technology, environmental sustainability, export control, and product certification, including new laws and regulations in response to climate change or disclosure of climate change-related efforts. Changes in regulatory requirements in any of these areas could have a material adverse effect on our business, operating results, and financial condition.

If we were not able to satisfy data protection, security, privacy and other government- and industry-specific requirements or regulations, our business, results of operations and financial condition could be harmed.

Personal privacy, data protection, information security and telecommunications-related laws and regulations have been widely adopted in the United States, Europe and in other jurisdictions where we offer our products. The regulatory frameworks for these matters, including privacy, data protection and information security matters, is rapidly evolving and is likely to remain uncertain for the foreseeable future. We expect that there will continue to be new proposed laws, regulations and industry standards concerning privacy, data protection, information security and telecommunications services in the United States, the European Union and other jurisdictions in which we operate or may operate, and it is not known what impact such future laws, regulations and standards may have on our business. For example, the European Commission adopted the General Data Protection Regulation, or GDPR, effective in May 2018, which imposes more stringent EU data protection requirements and imposes greater penalties for noncompliance than prior regulations. In July 2020, the European Court of Justice invalidated the Privacy Shield regime that had been established under GDPR as a safe harbor for transfers of data to and from third parties, and in summer 2021, the European Commission published new Standard Contractual Clauses, or SCCs, as a European-Commission-approved compliance method for transfers of personal data of EEA individuals from the European Union to third countries, such as the United States. We rely on SCCs for transfers to and from third parties. In addition, we must ensure that third parties processing personal data of our EEA customers and/or employees outside of the EEA have compliant transfer mechanisms. To the extent we rely on SCCs, or any third party relies on the Privacy Shield regime for the compliant transfer of personal data, our ability to process EEA personal data to such parties could be jeopardized.

Additionally, California enacted the California Consumer Privacy Act of 2018, or CCPA, which took effect on January 1, 2020, and broadly defines personal information, gives California residents expanded privacy rights and protections and provides for civil penalties for violations. The California Privacy Rights Act, or CPRA, amends and explains the CCPA to create new and additional privacy rights and obligations. Most of the CPRA's substantive provisions become operative on January 1, 2023, with a look-back period beginning on January 1, 2022. We understand that additional states, such as Virginia, New York and Colorado, as well as other countries around the world, including India, are also in the process of enacting or amending data protection, security, and privacy regulations. In August 2021, China finalized its Personal Information Protection Law (PIPL), which entered into force on November 1, 2021. PIPL consolidates and clarifies requirements regarding use of the personal information of Chinese residents. Brazil's General Data Protection Law (LGPD) has been in force for a year, although the penalties provided by the law did not become enforceable until August 2021. This is Brazil's first comprehensive data protection regulation and is similar to the EU's GDPR.

We also expect that existing laws, regulations and standards may be interpreted in new manners in the future. Future laws, regulations, standards and other obligations, and changes in the interpretation of existing laws, regulations, standards and other obligations could require us to modify our products, restrict our business operations, increase our costs and impair our ability to maintain and grow our channel partner base and increase our revenues. The cost of compliance with, and other burdens imposed by new privacy laws may limit the use and adoption of our products and services and could have an adverse impact on our business, results of operations and financial condition.

Although we work to comply with applicable privacy and data security laws and regulations, industry standards, contractual obligations and other legal obligations, those laws, regulations, standards and obligations are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another. As such, we cannot assure ongoing compliance with all such laws, regulations, standards and obligations. Any failure or perceived failure by us to comply with applicable laws, regulations, standards or obligations, or any actual or suspected security incident, whether or not resulting in unauthorized access to, or acquisition, release or transfer of personally identifiable information or other data, may result in governmental enforcement actions and prosecutions, private litigation, fines and penalties or adverse publicity, and could cause channel partners to lose trust in us, which could have an adverse effect on our reputation and business.

Risks related to our intellectual property

Cyber-attacks, data breaches or malware may disrupt our operations, harm our operating results and financial condition, and damage our reputation or otherwise materially harm our business; and cyber-attacks or data breaches on our customers' networks, or in cloud-based services provided by or or enabled by us, could result in claims of liability against us, damage our reputation or otherwise materially harm our business.

We experience cyber-attacks and other attempts to gain unauthorized access to our systems on a regular basis, and we anticipate continuing to be subject to such attempts. Despite our implementation of security measures, (i) our products and services, and (ii) the servers, data centers, and cloud-based solutions on which our and third-party data is stored, are vulnerable to cyber-attacks, data breaches, malware, and disruptions from unauthorized access, tampering or other theft or misuse, including by employees, malicious actors or inadvertent error. Such events could in the future compromise or disrupt access to or the operation of our products, services, and networks or those of our customers, or result in the information stored on our systems or those of our customers being improperly accessed, processed, disclosed, lost or stolen. We have not to date experienced a material event; however, the occurrence of any such event in the future could subject us to liability to our customers, suppliers, business partners and others, give rise to legal and/or regulatory action, could damage our reputation or otherwise materially harm our business, and could have a material adverse effect on our business, operating results, and financial condition. Efforts to limit the ability of malicious actors to disrupt our operations or undermine our own security efforts may be costly to implement and may not be successful. Breaches of security in our customers' networks, or in cloud-based services provided by or enabled by us, regardless of whether the breach is attributable to a vulnerability in our products or services, could result in claims of liability against us, damage our reputation or otherwise materially harm our business.

Vulnerabilities and critical security defects, prioritization decisions regarding remedying vulnerabilities or security defects, failure of third-party providers to remedy vulnerabilities or security defects, or customers not deploying security releases or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation, or otherwise materially harm our business.

The products and services we sell to customers, and our cloud-based solutions, inevitably contain vulnerabilities or critical security defects which have not been remedied and cannot be disclosed without compromising security. We also make prioritization decisions in determining which vulnerabilities or security defects to fix and the timing of these fixes. Customers may also delay the deployment or implementation of fixes offered or made available by us. In addition, we rely on third-party providers of software and cloud-based services, and we cannot control the rate at which they remedy vulnerabilities. When customers do not deploy specific releases, or decide not to upgrade to the latest versions of our products, services or cloud-based solutions containing the release, they may be left vulnerable. Vulnerabilities and critical security defects, prioritization errors in remedying vulnerabilities or security defects, failure of third-party providers to remedy vulnerabilities or security defects, or customers not deploying specific releases or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation or otherwise materially harm our business.

We rely on the availability of third-party licenses, the loss of which could materially harm our ability to sell our products.

We rely on certain software or other intellectual property licensed from third parties. It may be necessary in the future to seek new licenses or renew existing licenses. There can be no assurance that the necessary licenses would be available on acceptable terms, if at all. If we are unable to maintain these licenses, or obtain licenses to alternative third-party intellectual property, on acceptable terms, we may be precluded from selling our products, may be required to re-design our products to eliminate reliance on such third-party intellectual property or otherwise experience disruption in operating our business. Third parties owning such intellectual property may engage in litigation against us seeking protection of their intellectual property rights, any of which could have a material adverse effect on our business, operating results, and financial condition.

If we are unable to protect our intellectual property rights, our competitive position could be harmed or we may incur significant expenses to enforce our rights.

We protect our proprietary information and technology through license agreements, nondisclosure agreements, noncompetition covenants, and other contractual provisions and agreements, as well as through patent, trademark, copyright and trade secret laws in the United States and similar laws in other countries. These protections may not be available in all jurisdictions and may be inadequate to prevent our competitors or other third-party manufacturers from copying, reverse engineering or otherwise obtaining and using our technology, proprietary rights or products. For example, the laws of certain countries in which our products are manufactured or licensed do not protect our proprietary rights to the same extent as the laws of the United States. In addition, third parties may seek to challenge, invalidate or circumvent our patents, trademarks, copyrights and trade secrets, or applications for any of the foregoing. We have focused patent, trademark, copyright and trade secret protection primarily in the United States and Europe, although we distribute our products globally. As a result, we may not have sufficient protection of our intellectual property in all countries where infringement may occur. There can be no assurance that our competitors will not independently develop technologies that are substantially equivalent or superior to our technology or design around our proprietary rights. In each case, our ability to compete could be significantly impaired. To prevent substantial unauthorized use of our intellectual property rights, it may be necessary to prosecute actions for infringement and/or misappropriation of our proprietary rights against third parties. Any such action could result in significant costs and diversion of our resources and management's attention, and we may not be successful in such action.

Claims by others that we infringe their intellectual property rights could harm our business.

Our industry is characterized by vigorous protection and pursuit of intellectual property rights. A number of companies hold a large number of patents that may cover technology necessary to our products. We have in the past received and expect to continue to receive claims by third parties that we infringe their intellectual property rights.

In addition, we have received correspondence from certain patent holding companies who assert that we infringe certain patents related to wireless communication technologies. A court adjudicating a claim that we infringe these patents may not rule in our favor should these patent holding companies file suit against us. As our business expands, we enter into new technologies, and the number of products and competitors in our market increases, we expect that infringement claims may increase in number and significance. It is not uncommon for suppliers of certain components of our products, such as chipsets, to be involved in intellectual property-related lawsuits by or against third parties. Our key component suppliers are often targets of such assertions, and we may become a target as well. Any claims or proceedings against us, whether meritorious or not, could be time-consuming, result in costly litigation, require significant amounts of management time or result in the diversion of significant operational resources, any of which could materially and adversely affect our business and operating results.

Intellectual property lawsuits are subject to inherent uncertainties due to the complexity of the technical issues involved, and we cannot be certain that we will be successful in defending ourselves against intellectual property claims. In addition, we currently have a limited portfolio of issued patents compared to our larger competitors, and therefore may not be able to effectively utilize our intellectual property portfolio to assert defenses or counterclaims in response to patent infringement claims or litigation brought against us by third parties. Patent holding companies may seek to monetize patents they previously developed, have purchased or otherwise obtained. Many companies, including our competitors, may now, and in the future, have significantly larger and more mature patent portfolios than we have, which they may use to assert claims of infringement, misappropriation and other violations of intellectual property rights against us. In addition, future litigation may involve non-practicing entities or other patent owners who have no relevant products or revenue and against whom our own patents may therefore provide little or no deterrence or protection, and many other potential litigants have the capability to dedicate substantially greater resources than we do to enforce their intellectual property rights and to defend claims that may be brought against them.

A successful claimant could secure a judgment that requires us to pay substantial damages or prevents us from distributing certain products, obtaining the services of certain employees or independent contractors, or performing certain services. In addition, we might be required to seek a license for the use of such intellectual property, which may not be available on commercially acceptable terms or at all. Alternatively, we may be required to develop non-infringing technology, which could require significant effort and expense and may ultimately not be successful. Any claims or proceedings against us, whether meritorious or not, could be time consuming, result in costly litigation, require significant amounts of management time, result in the diversion of significant operational resources, or require us to enter into royalty or licensing agreements.

Although we may be able to seek indemnification from our component suppliers and certain of our third-party manufacturers who have provided us with design and build services, these third-party manufacturers or component suppliers may contest their obligations to indemnify us, or their available assets or indemnity obligation may not be sufficient to cover our losses.

Our obligations to indemnify our channel partners and network operators against intellectual property infringement claims could cause us to incur substantial costs.

We have agreed, and expect to continue to agree, to indemnify our channel partners and network operators for certain intellectual property infringement claims. If intellectual property infringement claims are made against our channel partners or network operators concerning our products, we could be required to indemnify them for losses resulting from such claims or to refund amounts they have paid to us. The maximum potential amount of future payments we could be required to make may be substantial or unlimited and could materially harm our business. We may in the future agree to defend and indemnify our distributors, network operators and other parties, even if we do not believe that we have an obligation to indemnify them or that our services and products infringe the asserted intellectual property rights. Alternatively, we may reject certain of these indemnity demands, which may lead to disputes with a distributor, network operator or other party and may negatively impact our relationships with the party demanding indemnification or result in litigation against us.

If our third-party manufacturers do not respect our intellectual property and trade secrets and produce competitive products using our design, our business would be harmed.

We outsource manufacture, and in some cases hardware or software design, to third-party manufacturers predominantly in Mexico, China, Israel and Taiwan. Prosecution of intellectual property infringement and trade secret theft is more difficult in some of these jurisdictions than in the United States. Although our agreements with our third-party manufacturers generally preclude them from misusing our intellectual property and trade secrets, or using our designs to manufacture product for our competitors, we may be unsuccessful in monitoring and enforcing our intellectual property rights and may find counterfeit goods in the market being sold as our products or products similar to ours produced for our competitors using our intellectual property. Although we take steps to stop counterfeits, we may not be successful and network operators who purchase these counterfeit goods may experience product defects or failures, harming our reputation and brand and causing us to lose future sales.

We use open source software in our products that may subject our firmware to general release or require us to re-engineer our products and the firmware contained therein, which may cause harm to our business.

We incorporate open source software into our products. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the software code. Some open source licenses contain requirements that we make available source code for modifications or derivative works we create based upon the open source software and that we license such modifications or derivative works under the terms of a particular open source license or other license granting third parties certain rights of further use. If we combine our proprietary firmware or other software with open source software in a certain manner, we could, under certain of the open source licenses, be required to release our proprietary source code publicly or license such source code on unfavorable terms or at no cost. Open source license terms relating to the disclosure of source code in modifications or derivative works to the open source software are often ambiguous and few if any courts in jurisdictions applicable to us have interpreted such terms. As a result, many of the risks associated with usage of open source software cannot be eliminated, and could, if not properly addressed, negatively affect our business.

If we were found to have inappropriately used open source software, we may be required to release our proprietary source code, re-engineer our firmware or other software, discontinue the sale of our products in the event re-engineering cannot be accomplished on a timely basis or take other remedial action that may divert resources away from our development efforts, any of which could adversely increase our expenses and delay our ability to release our products for sale. We could also be subject to similar conditions or restrictions should there be any changes in the licensing terms of the open source software incorporated into our products.

Financial and accounting risks

If we fail to maintain an effective system of internal controls, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

As a public company, we are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, and the rules and regulations of Nasdaq. The requirements of these rules and regulations has and will increase our legal, accounting and financial compliance costs, make some activities more difficult, time-consuming and costly and place strain on our personnel, systems and resources.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures over financial reporting. We are continuing to develop and refine our disclosure controls, internal control over financial reporting and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we will file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Exchange Act is accumulated and communicated to our principal executive and financial officers.

Our current controls and any new controls we develop may become inadequate because of growth in our business. Further, weaknesses, including material weaknesses, in our internal controls have been discovered in the past and additional weaknesses may be discovered in the future. Any failure to develop or maintain effective controls, or any difficulties encountered in their implementation or improvement, could harm our operating results or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods. Any failure to implement and maintain effective internal controls also could adversely affect the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting that we will be required to include in our periodic reports we will file with the SEC under Section 404 of the Sarbanes-Oxley Act once we cease to be an emerging growth company. Ineffective disclosure controls and procedures and internal control over financial reporting could also cause investors to lose confidence in our reported financial and other information, which would likely have a negative effect on the market price of our shares.

We have expended and anticipate we will continue to expend significant resources, and we expect to provide significant management oversight, to maintain and improve the effectiveness of our disclosure controls and procedures and internal controls over financial reporting. Any future failure to maintain the adequacy of our internal controls, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and could materially impair our ability to operate our business. If our internal controls are perceived as inadequate or we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and our share price could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on Nasdaq.

Our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal control over financial reporting until after we are no longer an emerging growth company. At such time, our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our controls are documented, designed or operating. Any failure to maintain effective disclosure controls and internal control over financial reporting could have a material and adverse effect on our business and operating results and could cause a decline in the price of our shares.

Our business, operating results and growth rates may be adversely affected by current or future unfavorable economic and market conditions.

Our business depends on the overall demand for wireless network technology and on the economic health and general willingness of our current and prospective end-customers to make those capital commitments necessary to purchase our products. If the conditions in the U.S. and global economies deteriorate, become uncertain or volatile, our business, operating results and financial condition may be materially adversely affected. Economic weakness, end-customer financial difficulties, limited availability of credit and constrained capital spending have resulted, and may in the future result, in challenging and delayed sales cycles, slower adoption of new technologies and increased price competition, and could negatively impact our ability to forecast future periods, which could result in an inability to satisfy demand for our products and a loss of market share.

In particular, we cannot be assured of the level of spending on wireless network technology, the deterioration of which would have a material adverse effect on our results of operations and growth rates. The purchase of our products or willingness to replace existing infrastructure is discretionary and highly dependent on a perception of continued rapid growth in consumer usage of mobile devices and in many cases involves a significant commitment of capital and other resources. Therefore, weak economic conditions or a reduction in capital spending would likely adversely impact our business, operating results and financial condition. A reduction in spending on wireless network technology could occur or persist even if economic conditions improve.

In addition, if interest rates rise or foreign exchange rates weaken for our international customers, overall demand for our products and services could decline and related capital spending may be reduced. Furthermore, any increase in worldwide commodity prices may result in higher component prices for us and increased shipping costs, both of which may negatively impact our financial results.

The elimination of LIBOR could adversely affect our business, results of operations or financial condition.

In July 2017, the head of the United Kingdom Financial Conduct Authority announced plans to phase out the use of LIBOR by the end of 2021. Although the impact is uncertain at this time, the elimination of LIBOR could have an adverse impact on our business, results of operations, or financial condition. Although our credit facilities with Bank of America contemplates the elimination of LIBOR-indexed loans, we may incur significant expenses to amend our LIBOR-indexed loans, and other applicable financial or contractual obligations, including our credit facilities, to a new reference rate, which may differ significantly from LIBOR. Accordingly, the use of an alternative rate could result in increased costs, including increased interest expense on our credit facilities, and increased borrowing and hedging costs in the future. At this time, no consensus exists as to what rate or rates may become acceptable alternatives to LIBOR and we are unable to predict the effect of any such alternatives on our business, results of operations or financial condition.

Our credit facility contains restrictive financial covenants that may limit our operating flexibility.

We entered into a new credit facility, replacing our existing credit facility, in November 2021. Our credit facility contains certain restrictive covenants that either limit our ability to, or require a mandatory prepayment in the event we, among other things, create or assume certain liens; create, incur or assume additional indebtedness, subject to specified permitted debt; make or hold certain investments, subject to certain exceptions; enter into certain mergers, liquidations, consolidations and other fundamental changes, subject to specified exceptions; make certain sales and other disposition of property or assets, including sale and leaseback transactions, subject to certain conditions and exceptions; make certain payments of dividends, share repurchase and other distributions, subject to certain exceptions; and enter into certain transactions with affiliates. We, therefore, may not be able to engage in any of the foregoing transactions unless we obtain the consent of our lenders or prepay certain amounts under the credit facility. The credit facility also contains certain financial covenants and financial reporting requirements. We have in the past, and may in the future, fail to comply with all of the financial or restrictive covenants of our credit facility, requiring a waiver from our lenders. Our obligations under the credit facility are secured by substantially all of our assets. We may not be able to generate or sustain sufficient cash flow or sales to meet the financial covenants or pay the principal and interest under the credit facility, and we may in the future be unable to meet our financial covenants, requiring additional waivers that our lenders may be unwilling to grant. Furthermore, our future working capital, proceeds of borrowings or proceeds of equity financings could be required to be used to repay or refinance the amounts outstanding under the credit facility and, therefore, may be unavailable for other purposes. In the event of a liquidation, our lenders would be repaid all outstanding principal and interest prior to distribution of assets to unsecured creditors, and the holders of our shares would receive a portion of any liquidation proceeds only if all of our creditors, including our lenders, were first repaid in full.

We may face exposure to unknown tax liabilities, which could adversely affect our financial condition, cash flows and results of operations .

We are subject to income and non-income based taxes in the United States and in various non-U.S. jurisdictions. We file U.S. federal income tax returns as well as income tax returns in various U.S. state and local jurisdictions and many non-U.S. jurisdictions. The United States, United Kingdom, India, Mexico, and Brazil are the main taxing jurisdictions in which we operate. Significant judgment is required in dealing with uncertainties in the application of complex tax regulations when calculating our worldwide income tax liabilities and other tax liabilities. We are not aware of any uncertain tax positions as specified by Accounting Standards Codification 740, *Income Taxes*. We expect to continue to benefit from our implemented tax positions. We believe that our tax positions comply with applicable tax law and intend to vigorously defend our positions. However, as described below, tax authorities could take differing positions on certain issues.

We may be subject to income tax audits in all the jurisdictions in which we operate. The years open for audit vary depending on the tax jurisdiction. In the United States, we are no longer subject to U.S. federal income tax examinations by tax authorities for years before 2018. In the non-U.S. jurisdictions, the tax returns that are open vary by jurisdiction and are generally for tax years between 2017 through 2021. We routinely assess exposures to any potential issues arising from current or future audits of current and prior years' tax returns. When assessing such potential exposures and where necessary, we provide a reserve to cover any expected loss. To the extent that we establish a reserve, we increase our provision for income taxes. If we ultimately determine that payment of these amounts is unnecessary, we reverse the liability and recognize a tax benefit during the period in which we determine that the liability is no longer necessary. We record an additional charge in our provision for taxes in the period in which we determine that tax liability is greater than the original estimate. If the governing tax authorities have a differing interpretation of the applicable law, a successful challenge of any of our tax positions could adversely affect our financial condition, cash flows and/or results of operations.

Risks related to ownership of our ordinary shares

Because Vector Capital holds a controlling interest in us, the influence of our public shareholders over significant corporate actions will be limited.

Affiliates of Vector Capital directly or indirectly own approximately 53% of our outstanding shares through their ownership of Vector Cambium Holdings (Cayman), L.P., or VCH, L.P., which was reduced from 63% during 2021 as a result of Vector Capital's sale of 2.0 million of our ordinary shares on May 12, 2021 pursuant to a registration statement declared effective on November 24, 2020. As a result of its controlling interest in us, Vector Capital has the power to:

- control all matters submitted to our shareholders;
- elect our directors; and
- exercise control over our business, policies and affairs.

Vector Capital is not prohibited from selling its interest in us to third parties, and has sold and will continue to periodically sell its interest in us under the currently effective shelf registration statement and future registration statements that are filed by us. While Vector Capital continues to own a majority of our outstanding shares, our ability to engage in significant transactions, such as a merger, acquisition or liquidation, is limited without the consent of Vector Capital. Conflicts of interest could arise between us and Vector Capital, and any conflict of interest may be resolved in a manner that does not favor us. Vector Capital may continue to retain control of us for the foreseeable future and may decide not to enter into a transaction in which our shareholders would receive consideration for their shares that is much higher than the cost to them or the then-current market price of those shares. In addition, Vector Capital could elect to sell a controlling interest in us and shareholders may receive less than the then-current fair market value or the price paid for their shares. Any decision regarding their ownership of us that Vector Capital may make at some future time will be in their absolute discretion.

In addition, pursuant to the terms of our Amended and Restated Memorandum and Articles of Association, Vector Capital and its affiliates have the right to, and have no duty to abstain from, exercising its right to engage or invest in the same or similar business as us, and do business with any of our channel partners, distributors, network operators and any other party with which we do business. In the event that any of our directors or officers who is also a director, officer or employee of Vector Capital or its affiliates acquires knowledge of a corporate opportunity or is offered a corporate opportunity, then Vector Capital or its affiliates may pursue or acquire such corporate opportunity without presenting the corporate opportunity to us without liability, and to the maximum extent permitted by applicable law, such relevant director will be deemed to have fully satisfied their fiduciary duty if the knowledge of such corporate opportunity was not acquired solely in such person's capacity as our director or officer and such person acted in good faith.

In addition, pursuant to our Amended and Restated Memorandum and Articles of Association, a director who is in any way interested in a contract or transaction with us will declare the nature of his interest at a meeting of the board of directors. A director may vote in respect of any such contract or transaction notwithstanding that he may be interested therein and if he does so his vote will be counted and he may be counted in the quorum at any meeting of the board of directors at which any such contract or transaction shall come before the meeting of the board of directors for consideration. We have adopted a written audit committee charter, pursuant to which the audit committee must review all related party transactions required to be disclosed in our financial statements and approve any such related party transaction, unless the transaction is approved by another independent committee of our board.

We are a controlled company within the meaning of Nasdaq rules and, as a result, we qualify for and are relying on exemptions from certain corporate governance requirements.

Vector Capital controls a majority of the voting power of our outstanding shares and as a result, we are a controlled company within the meaning of the corporate governance standards of the Nasdaq. Under Nasdaq rules, a controlled company may elect not to comply with certain corporate governance requirements of the Nasdaq, including the requirements that:

- a majority of the board of directors consist of independent directors;
- the nominating and corporate governance committee be composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities;
- the compensation committee be composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities; and
- there be an annual performance evaluation of the nominating and corporate governance and compensation committees.

We are utilizing these exemptions, other than the exemption relating to the independence of the board of directors, as our board of directors is now composed of a majority of independent directors. In addition, although we have adopted charters for our audit and compensation committees and intend to conduct annual performance evaluations for these committees, our compensation committee is not composed entirely of independent directors, although all members of our audit committee are independent. Accordingly, shareholders may not have the same protections afforded to shareholders of companies that are subject to all of the corporate governance requirements of Nasdaq.

The price of our shares may be volatile, and shareholders could lose all or part of their investment.

The trading price of our shares may fluctuate substantially. The trading price of our shares will depend on a number of factors, including those described in this “Risk factors” section, many of which are beyond our control and may not be related to our operating performance. These fluctuations could cause shareholders to lose all or part of their investment in our shares since they might be unable to sell their shares at or above the price paid for them. Factors that could cause fluctuations in the trading price of our shares include the following:

- the financial projections we may provide to the public, any changes in those projections or our failure to meet those projections;
- actual or anticipated developments in our business or our competitors’ businesses or the competitive landscape generally;
- sales of our shares by us or our shareholders or hedging activities by market participants;
- failure of financial analysts to maintain coverage of us, changes in financial estimates by any analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- operating performance or stock market valuations of other technology companies generally, or those in our industry in particular;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- general economic conditions and slow or negative growth of our markets;
- rumors and market speculation involving us or other companies in our industry;
- litigation involving us, our industry or both or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property or other proprietary rights;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any major change in our management; and
- other events or factors, including those resulting from war, incidents of terrorism or responses to these events.

In addition, the stock market in general, and the market for technology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may seriously affect the market price of our shares, regardless of our actual operating performance. In the past, following periods of volatility in the overall market and the market prices of particular companies’ securities, securities class action litigations have often been instituted against these companies. Litigation of this type, if instituted against us, could result in substantial costs and a diversion of our management’s attention and resources.

Our memorandum and articles of association contain anti-takeover provisions that could have a material adverse effect on the rights of holders of our shares.

Our Amended and Restated Memorandum and Articles of Association contain provisions to limit the ability of others to acquire control of our company through non-negotiated transactions. These provisions could have the effect of depriving our shareholders of an opportunity to sell their shares at a premium over prevailing market prices by discouraging third parties from seeking to obtain control of our company in a tender offer or similar transaction. For example, our board of directors has the authority to issue undesignated, or “blank-check,” preferred shares without shareholder approval. As a result, our board of directors could authorize and issue a series of preferred shares with terms calculated to delay or prevent a change in control of our company or make removal of management more difficult, which may not be in the interests of holders of our ordinary shares. In addition, our board is staggered and divided into three classes, with each class subject to re-election once every three years on a rotating basis, special meeting of shareholders may only be called by a specified group of directors, executives or shareholders and shareholders must comply with advance notice provisions in order to bring business before or nominate directors for election at shareholder meetings. As a result, shareholders would be prevented from electing an entirely new board of directors at any annual meeting and the ability of shareholders to change the membership of a majority of our board of directors may be delayed.

Because we are incorporated under Cayman Islands law, shareholders may face difficulties in protecting their interests, and the ability to protect rights through U.S. courts may be limited.

We are an exempted company incorporated under the laws of the Cayman Islands. Our corporate affairs are governed by our Amended and Restated Memorandum and Articles of Association, the Companies Act (as amended) of the Cayman Islands and the common law of the Cayman Islands. The rights of shareholders to take action against the directors, actions by minority shareholders and the fiduciary responsibilities of our directors to us under Cayman Islands law are governed by the common law of the Cayman Islands and we have adopted an exclusive forum by law that requires certain shareholder litigations regarding such matters to be brought in Cayman Islands Courts. These exclusive forum provisions do not apply to claims under U.S. federal securities laws. The common law of the Cayman Islands is derived in part from comparatively limited judicial precedent in the Cayman Islands as well as from the common law of England, the decisions of whose courts are of persuasive authority, but are not binding, on a court in the Cayman Islands. The rights of our shareholders and the fiduciary responsibilities of our directors under Cayman Islands law are not as clearly established as they would be under statutes or judicial precedent in some jurisdictions in the United States. In particular, the Cayman Islands has a less developed body of securities laws than the United States. Some U.S. states, such as Delaware, have more fully developed and judicially interpreted bodies of corporate law than the Cayman Islands.

Shareholders of Cayman Islands exempted companies like us have no general rights under Cayman Islands law to inspect corporate records or to obtain copies of lists of shareholders of these companies. Our directors have discretion under our existing articles of association to determine whether or not, and under what conditions, our corporate records may be inspected by our shareholders, but are not obliged to make them available to our shareholders. This may make it more difficult for shareholders to obtain the information needed to establish any facts necessary for a shareholder motion or to solicit proxies from other shareholders in connection with a proxy contest.

In addition, the Cayman Islands courts are also unlikely (1) to recognize or enforce against us judgments of courts of the United States based on certain civil liability provisions of U.S. securities laws, or (2) to impose liabilities against us, in original actions brought in the Cayman Islands, based on certain civil liability provisions of U.S. securities laws that are penal in nature. There is no statutory recognition in the Cayman Islands of judgments obtained in the United States, although the courts of the Cayman Islands will in certain circumstances recognize and enforce a foreign judgment of a foreign court of competent jurisdiction without any re-examination of the merits at common law.

As a result of all of the above, our public shareholders may have more difficulty in protecting their interests in the face of actions taken by management, members of the board of directors or large shareholders than they would as shareholders of a public company incorporated in the United States.

We are an emerging growth company, and any decision on our part to comply only with certain reduced disclosure requirements applicable to emerging growth companies could make our shares less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act, and, for as long as we continue to be an emerging growth company, we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to emerging growth companies, including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We could be an emerging growth company for up to five years following our initial public offering, although if the market value of our shares that are held by non-affiliates exceeds $700 million as of any June 30 before the conclusion of that five year period, or if we have total annual gross revenues of $1.07 billion or more during any fiscal year before the conclusion of that five year period, we would cease to be an emerging growth company as of the end of the fiscal year in which such threshold is met. In addition, if we issue more than $1 billion in non-convertible debt in a three-year period, we would cease to be an emerging growth company immediately. Investors may find our shares less attractive because we choose to rely on these exemptions. If some investors find our shares less attractive as a result of our choice to reduce our disclosures, there may be a less active trading market for our shares and our share price may be more volatile.

Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Our directors may have conflicts of interest because of their ownership of equity interests of, and their employment with, our parent company and our affiliates.

Two of our directors hold ownership interests in Vector Capital as well as ownership in and employment positions with its affiliates. Ownership interests in Vector Capital by our directors could create, or appear to create, potential conflicts of interest when our directors are faced with decisions that could have different implications for us and for Vector Capital or its affiliates. Conflicts of interest may not be resolved in our favor.

General risks

If we are unable to manage our growth and expand our operations successfully, our business and operating results will be harmed.

We have expanded our operations significantly since inception and anticipate that further significant geographic and market expansion will be required to achieve our business objectives. The growth and expansion of our geographic sales, expansion of our products and our entry into new industry verticals places a significant strain on our management, operational and financial resources. Any such future growth would also add complexity to and require effective coordination throughout our organization. To manage any future growth effectively, we must continue to improve and expand our information technology and financial infrastructure, our operating and administrative systems and controls, and our ability to manage headcount, capital and processes in an efficient manner. We may not be able to successfully implement improvements to these systems and processes in a timely or efficient manner, which could result in additional operating inefficiencies and could cause our costs to increase more than planned. If we do increase our operating expenses in anticipation of the growth of our business and this growth does not meet our expectations, our operating results may be negatively impacted. If we are unable to manage future expansion, our ability to provide high quality products and services could be harmed, which could damage our reputation and brand and may have a material adverse effect on our business, operating results and financial condition.

Our business is subject to the risks of earthquakes, fire, floods and other catastrophic events, and to interruption by manmade problems such as network security breaches, computer viruses, terrorism and war.

We have substantial operations in Illinois, California, England and India, and our third-party manufacturers are predominantly located in Mexico, China, Taiwan and Israel. Operations in some of these areas are susceptible to disruption due to severe weather, seismic activity, political unrest and other factors. For example, a significant natural disaster, such as an earthquake, a fire or a flood, occurring at the facilities of one of our third-party manufacturers could have a material adverse impact on their ability to manufacture and timely deliver our products. In addition, due to the current fears over the spread of COVID-19, our third-party manufacturers in China may experience disruption of their operations. Despite the implementation of network security measures, we also may be vulnerable to computer viruses, break-ins and similar disruptions from unauthorized tampering with our solutions. In addition, natural disasters, acts of terrorism or war could cause disruptions in the businesses of our suppliers, manufacturers, network operators or the economy as a whole. To the extent that any such disruptions result in delays or cancellations of orders or impede our ability to timely deliver our products, or the deployment of our products, our business, operating results and financial condition would be adversely affected.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

As of December 31, 2021, we occupied approximately 38,000 square feet of office space in Rolling Meadows, Illinois under lease agreements that expire in 2024, where we have corporate and executive functions, research and development, customer support, operations and administration and finance services. We also lease approximately 27,000 square feet of office space in Ashburton, England under lease agreements all of which expire in 2026, approximately 44,000 square feet of space in Bangalore, India under five leases that expire between 2023 to 2026, approximately 9,000 square feet of office space in San Jose, California under a lease that expires in 2023, and approximately 9,000 square feet of office space in Thousand Oaks, California under a lease that expires in 2023. In addition, we maintain offices in Miami, Florida, Italy, Dubai, Mexico and Singapore.

For additional information regarding obligations under operating leases, see Note 17 - Leases in the Notes to the Consolidated Financial Statements included in Part II, Item 8: “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Item 3. Legal Proceedings.

Third parties may from time to time assert legal claims against us.

Our industry is characterized by vigorous protection and pursuit of intellectual property rights. A number of companies hold a large number of patents that may cover technology necessary to our products. We have in the past received and expect to continue to receive claims by third parties that we infringe their intellectual property rights. In addition, we may be involved, from time to time, in a variety of claims, lawsuits, investigations, and proceedings relating to contractual disputes, intellectual property rights, employment matters, regulatory compliance matters and other litigation matters relating to various claims that arise in the normal course of business. We determine whether an estimated loss from a contingency should be accrued by assessing whether a loss is deemed probable and can be reasonably estimated. We assess our potential liability by analyzing specific litigation and regulatory matters using available information. We develop our views on estimated losses in consultation with inside and outside counsel, which involves a subjective analysis of potential results and outcomes, and following such assessment, record an amount where it is probable that we will incur a loss and where that loss can be reasonably estimated. However, our estimates may be incorrect and we could ultimately incur more or less than the amounts initially recorded. We are not currently aware of any pending or threatened litigation that would have a material adverse effect on our financial statements.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities.

Market information

Our ordinary shares have been listed on the NASDAQ Global Market under the symbol "CMBM" since June 26, 2019.

Holders of record

As of December 31, 2021, there were 148 shareholders of record of our ordinary shares. Because many of our shares are held by brokers and other institutions on behalf of shareholders, we are unable to estimate the total number of shareholders represented by these record holders. The closing price of our ordinary shares on December 31, 2021 was $25.38 per share as reported on the NASDAQ Global Market.

Recent sale of unregistered securities

None.

Use of proceeds from Initial Public Offering of ordinary shares

The offer and sale of all of the shares in our IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-21789), which was declared effective by the SEC on June 25, 2019. The remainder of the information required by this item regarding the use of our IPO proceeds has been omitted pursuant to SEC rules because such information has not changed since our last periodic report was filed.

Dividend policy

We have not declared or paid dividends on our ordinary shares since our IPO. Neither Cayman Island law nor our amended and restated certificate of incorporation requires our board of directors to declare dividends on our ordinary shares. Any future determination to declare cash dividends on our ordinary shares will be made at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant. We do not anticipate paying cash dividends on our ordinary shares for the foreseeable future.

Equity compensation plan information

Information regarding the securities authorized for issuance under our equity compensation plans will be included in our Proxy Statement relating to our 2022 annual meeting of Shareholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2021 and is incorporated herein by reference.

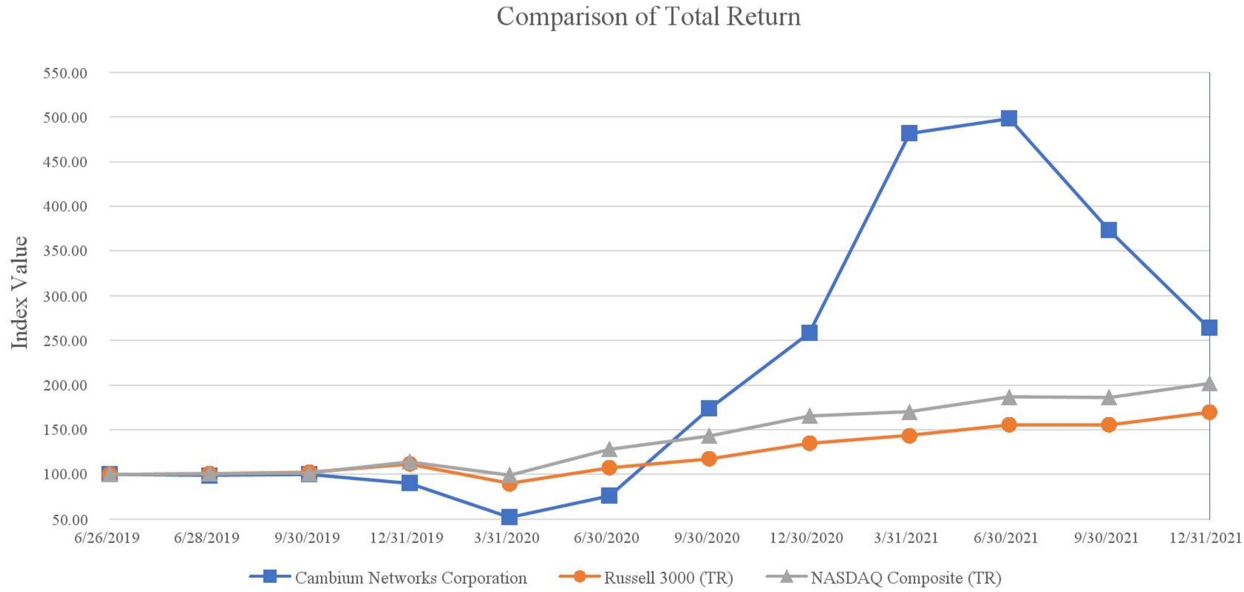
Issuer Purchase of Equity Securities

None.

Performance graph

Notwithstanding any statement to the contrary in any of our filings with the SEC, the following information shall not be deemed “filed” with the SEC or “soliciting material” under the Securities Exchange Act of 1934 and shall not be incorporated by reference into any such filings irrespective of any general incorporation language contained in such filing.

The following graph compares the total cumulative shareholder return on our ordinary shares with the total cumulative return of the Russell 3000 Index and the NASDAQ Composite Index during the period commencing on June 26, 2019, the initial trading day of our ordinary shares, and ending on December 31, 2021. The graph assumes that $100 was invested at the beginning of the period in our ordinary shares and in each of the comparative indices, and the reinvestment of any dividends. Historical share price performance should not be relied upon as an indication of future share price performance.



	6/26/2019	6/28/2019	9/30/2019	12/31/2019	3/31/2020	6/30/2020	9/30/2020	12/30/2020	3/31/2021	6/30/2021	9/30/2021	12/31/2021
Cambium Networks Corporation	100.00	98.87	100.00	90.10	52.06	75.88	173.92	258.56	481.65	498.45	373.09	264.23
Russell 3000 (TR)	100.00	101.26	102.44	111.75	89.74	107.87	117.80	135.10	143.67	155.51	155.35	169.77
NASDAQ Composite (TR)	100.00	101.23	101.41	114.05	99.07	128.50	142.94	165.28	170.16	186.63	186.20	201.94

Item 6. Reserved.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of financial condition and results of operations was prepared to provide the reader with a view and perspective of our business through the eyes of management and should be read in conjunction with the consolidated financial statements and related notes thereto of Cambium Networks Corporation (“Cambium”, “we”, “our”, or “us”) included elsewhere in this Annual Report on Form 10-K. The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materiality from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly those discussed under Part I, Item 1A. “Risk Factors.” Our historical results are not necessarily indicative of the results that may be expected for any period in the future.

Overview

We provide fixed wireless broadband and Wi-Fi networking infrastructure solutions for network operators, including medium-sized wireless internet service providers, enterprises, mobile network operators and government agencies, communities and cities worldwide. Our scalable, reliable and high-performance solutions enable the creation of a purpose-built wireless fabric that connects people, places and things with a unified wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud, deployed indoors and outdoors. Our multi-gigabit wireless fabric offers a compelling value proposition to traditional fiber and alternative wireless solutions mobile infrastructure.

Our wireless fabric includes intelligent radios, smart antennas, radio frequency algorithms, wireless-aware switches and our on-premises or cloud-based network management software. Our embedded proprietary RF technology and software enables automated optimization of data flow at the outermost points in the network, which we refer to as the “intelligent edge.” This intelligent edge offers network operators increased performance, visibility, control and management, as well as the ability to efficiently transfer large amounts of data back to enterprise data centers for fast and efficient analysis and decision-making even in conditions characterized by a high degree of interfering signals generated both within the network or from outside sources, which we refer to as noise. Our products support licensed and unlicensed spectrum, tailored for many frequency bands. We provide deep technical and operational expertise based on years of deploying networks, resulting in ease of use of our products, and all Cambium Networks solutions are backed by our global organization that provides support services tailored to meet the business needs of our end users.

We were formed in 2011 when Cambium Networks acquired the Point-to-Point, or PTP, and Point-to-Multi-Point, or PMP, businesses from Motorola Solutions. Prior to the acquisition, Motorola Solutions had invested over a decade in developing the technology and intellectual property assets that formed the foundation for our business, having launched the Canopy PMP business in 1999 and having acquired the Orthogon Systems PTP business in 2006. Following the acquisition, we renamed the business Cambium Networks and we leveraged the technology to continue to develop and offer an extensive portfolio of reliable, scalable and secure enterprise-grade fixed wireless broadband and PTP and PMP platforms, Wi-Fi, switch and IIoT solutions.

We offer our fixed wireless broadband and Wi-Fi solutions in three categories:

- PTP: We offer PTP solutions designed to operate in unlicensed spectrum from 220 MHz to 6.05 GHz and in licensed spectrum from 6-38 and 71-86 GHz. In addition, our PTP 700 operates in NATO Band IV from 4.4-5.9 GHz, as well as in the 7 GHz and 8 GHz bands, and meets stringent federal operating, performance and security standards. The mainstay of our backhaul offering is the PTP 670 for commercial applications and PTP 700 for defense and national security applications. In addition, our PTP 820 and PTP 850 series offer carrier-grade microwave backhaul in licensed spectrum, and our PTP 550 offers price-performance leadership in spectral efficiency in sub-6GHz unlicensed spectrum. In addition to dedicated point-to-point platforms, as technology has evolved, solutions have developed that, while principally supporting point-to-multi-point architectures, also support point-to-point applications, including the 60 GHz cnWave v3000 Client Node and the ePMP Force 425. Revenues from these products are included in the PMP product category in our revenues by product category reporting, as that is their primary application.
- PMP: Our PMP portfolio ranges from our top-of-the-line PMP 450 series to our ePMP solutions for network operators that need to optimize for both price and performance to our cnReach family of narrow-bandwidth connectivity products for industrial communications. The PMP 450 series is optimized for performance in high-density and demanding physical environments, and includes the PMP 450m with integrated cnMedusa massive multi-user multiple input multiple output, or MU-MIMO, technology. The PMP 450 product line also supports the FCC’s Citizen Broadband Radio Service, or CBRS. PMP provides a high-quality platform at a more affordable price for less demanding environments. The ePMP 3000 supports 4x4 MU-MIMO and is complemented by a broad portfolio of ePMP Force 300 subscriber radios. The FCC and other regulatory bodies around the world have begun to release the 6 GHz band, ranging from 5825 MHz to 7125 MHz, to unlicensed use in indoor and outdoor applications. We have commenced development on both the PMP 450 and the ePMP platform to take advantage of this new spectrum offering. cnRanger, our Fixed LTE solution, operates in the 2 GHz (Bands 38, 40, 41) and 3 GHz (Bands 42, 43, 48). Like the PMP 450 platform, the 3 GHz cnRanger solution supports the CBRS service, while the 2 GHz bands support the FCC's Educational Broadband Service, or EBS, classification. cnReach products enable IIoT applications, such as supervisory control and data acquisition, or SCADA,

processes in the oil and gas, electric utility, water, railroad and other industrial settings. In the fourth quarter of 2020, we began shipping our 60 GHz solution, cnWave, which enables Gbps networking using the 60 GHz band and includes Meta's Terragraph technology. We expect to commence commercial shipment of our fixed 5G platform, operating from 24.25 to 29.50 GHz, encompassing the 3GPP 5G channels N257, N258 and N261 in the first half of 2022.

- Wi-Fi: Our Wi-Fi portfolio includes our cnPilot cloud-managed Wi-Fi solutions, our cnMatrix cloud-managed wireless-aware switching solution, our Xirrus Wi-Fi solutions, and our Wi-Fi 6 portfolio of Wi-Fi 6 access points which support both cnMaestro and Xirrus XMS management. cnPilot is for indoor and outdoor enterprise, small business, and home applications and offers a range of Wi-Fi access points and RF technology that enable network optimization based on desired geographic coverage and user density. cnMatrix provides the intelligent interface between wireless and wired networks. cnMatrix's policy-based configuration accelerates network deployment, mitigates human error, increases security, and improves reliability. Xirrus has a portfolio of high performance enterprise Wi-Fi access points and cloud-based subscription services. In June 2020, we introduced our first Wi-Fi 6 access point, the XV3-8, which supports both cnPilot and Xirrus solutions. In January 2021, we announced our XE series, which incorporates Wi-Fi 6E, support of the 6 GHz band, and will commence shipment in the first quarter of 2022. Additional Wi-Fi 6 access points are under development and will be released throughout 2022. In the first quarter of 2021, we introduced and began shipping the cnMatrix TX 2020R-P. The TX 2020R-P is the first in a series of switches designed specifically to support PMP and PTP fixed wireless broadband networks, incorporating the cnMatrix enterprise-class feature set and incorporating additional features and services pertinent to network operators deploying fixed wireless broadband networks. The TX2021-RP was introduced in April of 2021 and with the December introduction of the TX 2028RF-P and the TX 1012R-P, we have a comprehensive portfolio of switches to support our range of PMP and PTP networks operators, complementing the EX series intended to support enterprise Wi-Fi networks.

We generate a substantial majority of our sales through our global channel distribution network, including, as of December 31, 2021, approximately 170 distributors that we sell to directly, together with over 11,100 value added resellers and system integrators supplied by these distributors, for further sales to end-users. Our channel partners provide lead generation, pre-sales support and product fulfillment, along with professional services for network design, installation, commissioning and on-going field support. Although we fulfill sales almost exclusively through our channel partners, through our global sales team we engage directly with network operators in our key vertical markets including service providers, enterprises, industrials, defense and national security entities, and state and local governments. Our sales team responds to bids or requests for quotes, typically in collaboration with a channel partner. Our distributors carry inventory of our products for resale, and generally have stock rotation rights only if they simultaneously place an off-setting order for product. As such, we generally recognize revenue from sales to distributors on a sell-in basis, and manage our finished goods inventory to plan for distributor demand.

We outsource production to third-party manufacturers, who are responsible for purchasing and maintaining inventory of components and raw materials and, in certain cases, we resell third-party products on a white-label basis. We believe that this approach gives us the advantages of relatively low capital investment and significant flexibility in scheduling production, managing inventory levels and providing a comprehensive solution to meet network operator demand. The majority of our products are delivered to us at one of three distribution hubs, where we have outsourced the warehousing and delivery of our products to a third-party logistics provider and from which we manage worldwide fulfillment.

Trends impacting our business

Component shortages and increased freight costs

We remain constrained by the global component part shortages, particularly the shortage in available semiconductor chipsets and related components, as the global integrated circuit supply is under pressure as demand surpasses supply capacity, causing foundries to allocate existing supply among their customers. These supply constraints are occurring at a time of increasing demand for us and others globally, further exacerbating the supply constraint. As a result, we are experiencing increased lead times for the supply of many of our products, impacting our ability to timely supply our customers. In particular, semiconductor chips and merchant silicon and related semiconductor parts are currently in high demand with limited supply, which is resulting in significantly longer than usual lead times and increased costs for these components. We have encountered, and are likely to continue to encounter, shortages and delays in obtaining these and other components, and this could have a material adverse effect on our ability to meet customer orders. Shortages are expected to continue into 2022. In addition, such shortages or delays are resulting in increased component and delivery costs, as suppliers raise the cost of components. We have also experienced price increases in base commodities, impacting component pricing generally and in particular for electromechanical commodities. These component shortages and increases in costs have impacted, and are expected to continue over the short term to continue to impact, our sales and revenues, and our gross margins and net income.

Logistics challenges remain as well, as container shortages continue to lengthen availability times of containers and carriage, resulting in increases in relevant freight costs, all at a time when demand across many of our product lines has increased, together with increasing demand for shipment of many other products globally. Ports have increasing lead times with delays becoming commonplace in the container freight market as port delays, worker shortages and the impact of COVID-19 are impacting the ability to import and export goods, particularly from China. Logistics and freight costs are increasing substantially as a result. We are also experiencing increasing rates, resulting in increased use of expedited freight modes due to supply shortages. The use of expedited freight modes has increased our cost of revenues, resulting in a decrease in our gross margins, and is expected to continue in the short term.

COVID-19

The severity of the impact of the COVID-19 pandemic, and the disruption to our business and operations as well as the operations of our customers and suppliers, has lessened, and our markets are recovering as the need for additional connectivity continues to grow and as the market adopts newer technologies. We have benefitted from investments we have made over the past few years in fixed wireless infrastructure technologies in such areas as PMP, including CBRS-compatible products in the U.S. and in new opportunities such as gigabit wireless solutions with our 60 GHz millimeter wave products, our new enterprise Wi-Fi 6, and cloud-enabled wireless switching products and our 5G 28 GHz millimeter wave products enabling us to enter markets demanding higher broadband performance. In the U.S., the first phase of the Rural Digital Opportunity Fund, or RDOF, launched by the Federal Communications Commission, or FCC, is expected to accelerate the provision of high-speed broadband service to millions of underserved communities in the U.S. over the next ten years.

We remain subject to continued social distancing measures, continuing shutdowns globally that impact the ability of our end user customers to deploy our products, and continued restrictions on in person marketing and sales activities and even cessation in travel that impacts our sales activities, and resulting in continued general business uncertainty that negatively impacts demand in several of our markets.

We continue to focus on making sure our employees are safe and continue to operate with a substantial portion of our workforce working from home. We have allowed limited opening of our offices, but continue to have extended remote working and will continue to monitor conditions as we extend this further. We are slowly increasing travel to meet customer needs and are beginning to increase our business travel to customers, as well as to conferences and other marketing events. The extent of the continued impact of the COVID-19 pandemic on our operational and financial performance will depend on future developments, including the duration, severity and spread of the pandemic, related restrictions on travel and transportation and other actions that may be taken by governmental authorities and the impact to the business of our suppliers or customers, all of which are uncertain and cannot be predicted.

With respect to liquidity, we believe our balance sheet will provide us the necessary capital to navigate the COVID-19 pandemic. During 2020, we implemented several initiatives to conserve cash and optimize profitability, including limiting discretionary spending, temporarily reducing personnel costs, eliminating non-essential travel, delaying or reducing hiring activities, deferring certain discretionary capital expenditures and have continued to enforce these initiatives throughout 2021.

Digital transformation and new product introductions

While enterprises and governments continue to look to digital transformation to improve operations by harnessing new technologies, software and applications, our revenues have been impacted by the component shortages and freight and logistics delays referenced above, impacting our ability to manufacture and ship products according to orders. Enterprises seek to gain analytics and improve security and risk, while governments seek to connect more of the unconnected, including people, places (such as schools and government buildings) and things (such as meters, valves, doors, cameras), as well as to enable digital education, digital economy and digital currency. Each of these digital transformation objectives are underpinned by the need for increased connectivity, as employees, customers and others must be able to access the enterprise network securely from anywhere. As a result, we continue to see increased interest in connection with our wireless broadband solutions for customers accessing the CBRS band where we have benefitted from investments we have made over the past few years in fixed wireless infrastructure technologies in such areas as PMP, including CBRS-compatible products in the U.S. We have also seen increases in interest from our new opportunities such as gigabit wireless solutions with our 60 GHz cnWave millimeter wave products, our enterprise Wi-Fi 6, and cloud-enabled wireless switching products which enable higher speed connectivity (gigabits per second) and can be very rapidly deployed with a lot of flexibility to keep pace with the network demand these digital transformations are presenting. In the U.S., the first phase of the Rural Digital Opportunity Fund, or RDOF, launched by the Federal Communications Commission, or FCC, is expected to accelerate the provision of high-speed broadband service to millions of underserved communities in the U.S. over the next ten years, as well as the anticipated Infrastructure Investment and Jobs Act currently being considered.

International trade

A substantial portion of our Wi-Fi products are manufactured in China, and we continue to monitor tensions between the U.S. and China and their potential impact on our ability to produce and ship our products. Should tensions escalate, our ability to manufacture our products in China could be affected, causing disruption in our supply chain, and requiring us to seek other sources of supply.

Xirrus acquisition

In August 2019, we acquired select assets and assumed select liabilities of the Xirrus Wi-Fi products and cloud services business from Riverbed Technology, Inc. Xirrus has a portfolio of high performance enterprise Wi-Fi access points and subscription services. We paid $2.0 million upon closing and the agreement provided for additional $3.0 million of contingent consideration subject to Xirrus attaining certain booking targets. As of December 31, 2019, all booking targets were met and we paid the full $3.0 million of consideration through February 2020. This acquisition is intended to enhance and accelerate our existing network service application capabilities.

We account for business combinations in accordance with ASC 805, *Business Combinations*. We recorded the acquisition using the acquisition method of accounting and recognized assets and liabilities at their fair value as of the date of acquisition. We based the preliminary allocation of the purchase price on estimates and assumptions known at the date of acquisition that are subject to change within the purchase price allocation period, which is generally one year from the acquisition date. Our review of the purchase price allocation was completed in the period ended June 30, 2020. We determined the estimated fair value of identifiable intangible assets acquired primarily using an income approach.

Basis of presentation

Revenues

Our revenues are generated primarily from the sale of our products, which consist of hardware with essential embedded software. Our revenues also include limited amounts for software products, extended warranty on hardware products and subscription services. We generally recognize product revenues at the time of shipment, provided that all other revenue recognition criteria have been met. Revenues are recognized net of estimated stock returns, volume-based rebates and cooperative marketing allowances that we provide to distributors. We recognize subscription services revenue ratably over the term in which the services are provided and our performance obligation is satisfied. We provide a standard warranty on our hardware products, with the term depending on the product, and record a liability for the estimated future costs associated with potential warranty claims. In addition, we also offer extended warranties for purchase and represents a future performance obligation for us. The extended warranty is included in deferred revenues and is recognized on a straight-line basis over the term of the extended warranty. We provide our cnMaestro, LINKPlanner and cnArcher applications as supplemental tools to help network operators design, install, and manage their networks, and as a means of driving sales of our hardware products.

Cost of revenues and gross profit

Our cost of revenues is comprised primarily of the costs of procuring finished goods from our third-party manufacturers, third-party logistics and warehousing provider costs, freight costs and warranty costs. We outsource our manufacturing to third-party manufacturers located primarily in Mexico, China, Israel and Taiwan. Cost of revenues also includes costs associated with supply operations, including personnel related costs, provision for excess and obsolete inventory, third-party license costs and third-party costs related to services we provide. Cost of revenues also includes amortization of capitalized software costs associated with products marketed to be sold.

Gross profit has been and will continue to be affected by various factors, including changes in product mix. The margin profile of products within each of our core product categories can vary significantly depending on the operating performance, features and manufacturer of the product. Generally, our gross margins on backhaul and fixed wireless access point products are greater than those on our CPE products. Because the ratio of CPE to PTP and PMP access points typically increases as network operators build out the density of their networks, increases in follow-on sales to network operators as a percentage of our total sales typically have a downward effect on our overall gross margins. Finally, gross margin will also vary as a function of changes in pricing due to competitive pressure, our third-party manufacturing and other production costs, cost of shipping and logistics, provision for excess and obsolete inventory and other factors. We expect our gross margins will fluctuate from period to period depending on the interplay of these various factors.

Operating expenses

We classify our operating expense as research and development, sales and marketing, and general and administrative expense. Personnel costs are the primary component of each of these operating expense categories, which consist of cash-based personnel costs, such as salaries, sales commissions, benefits, share-based compensation and bonuses. In addition, we separate depreciation and amortization in their own category.

Research and development

In addition to personnel-related costs, research and development expense consists of costs associated with design and development of our products, product certification, travel and recruiting. We generally recognize research and development expense as incurred. For certain of our software projects under development, we capitalize the development cost during the period between determining technological feasibility of the product and commercial release. We amortize the capitalized development cost upon commercial release, generally over three years and is included in cost of revenues. We typically do not capitalize costs related to the development of first-generation product offerings as technological feasibility generally coincides with general availability of the software. Although research and development expenses decreased in 2020 related to lower contractor spend and travel as a result of restrictions due to the COVID-19 pandemic, as these restrictions have lifted in 2021, research and development expense have increased as we continue to invest in our future products and services.

Sales and marketing

In addition to personnel costs for sales, marketing, service and product line management personnel, sales and marketing expense consists of our training programs, trade shows, marketing programs, promotional materials, demonstration equipment, national and local regulatory approval on our products, travel and entertainment, and recruiting. In 2020, we experienced a decrease in payroll related costs driven by a reduction in headcount as part of the restructuring announced in November 2019 and February 2020. In addition, in 2020 we experienced a reduction in travel and entertainment and marketing related spending as a result of restrictions due to the COVID-19 pandemic. In 2021, sales and marketing expenses have increased as these restrictions are lifted and we increase the size of our sales, marketing, service, and product line management organization to support our growth, and, in particular, as we continue to expand our global distribution network.

General and administrative

In addition to personnel costs, general and administrative expense consists of professional fees, such as legal, audit, accounting, information technology and consulting costs, insurance, facilities and other supporting overhead costs. We expect general and administrative expense to increase as we increase the size of our finance, information technology, legal and human resources organization to support our growth and continue to incur additional costs associated with being a public company.

Depreciation and amortization

Depreciation and amortization expense consist of depreciation related to fixed assets such as computer equipment, furniture and fixtures, and testing equipment, as well as amortization related to acquired and internal use software and definite lived intangibles.

Provision for income taxes

Our provision for income taxes consists primarily of income taxes in the jurisdictions in which we conduct business. As we have expanded our international operations, we have incurred additional foreign tax expense, and we expect this to continue. Management assesses our deferred tax assets in each reporting period, and if it is determined that it is not more likely than not to be realized, we will record a valuation allowance in that period.

Results of operations

The following table presents the consolidated statements of operations, as well as the percentage relationship to total revenues for items included in our consolidated statements of operations for the year ended December 31, 2020 compared to the year ended December 31, 2021:

(in thousands)	2020	2021
Statements of Operations Data:		
Revenues	$ 278,459	$ 335,854
Cost of revenues	139,049	175,058
Gross profit	139,410	160,796
Operating expenses		
Research and development	43,188	47,929
Sales and marketing	36,784	40,787
General and administrative	28,851	29,490
Depreciation and amortization	6,639	6,171
Total operating expenses	115,462	124,377
Operating income	23,948	36,419
Interest expense, net	5,326	4,269
Other expense, net	491	244
Income before income taxes	18,131	31,906
Benefit for income taxes	(444)	(5,515)
Net income	**$ 18,575**	**$ 37,421**

	2020	2021
Percentage of Revenues:		
Revenues	100.0 %	100.0 %
Cost of revenues	49.9 %	52.1 %
Gross margin	50.1 %	47.9 %
Operating expenses		
Research and development	15.5 %	14.3 %
Sales and marketing	13.2 %	12.1 %
General and administrative	10.4 %	8.8 %
Depreciation and amortization	2.4 %	1.8 %
Total operating expenses	41.5 %	37.0 %
Operating income	8.6 %	10.9 %
Interest expense, net	1.9 %	1.3 %
Other expense, net	0.2 %	0.1 %
Income before income taxes	6.5 %	9.5 %
Benefit for income taxes	(0.2)%	(1.6)%
Net income	6.7 %	11.1 %

The following is the discussion and analysis of changes in the financial condition and results of operations for the year ended December 31, 2020 compared to the year ended December 31, 2021. The discussion and analysis of 2019 and changes in the financial condition and results of operations for the year-to-year comparisons between 2019 and 2020 that are not included in this Form 10-K may be found in "Management's Discussion and Analysis of Financial Condition and Results of Operation" in Part II, Item 7 of our Annual report on Form 10-K for the year ended December 31, 2020 filed with the Securities and Exchange Commission ("SEC") on March 1, 2021.

Comparison of the year ended December 31, 2020 to the year ended December 31, 2021

Revenues

			Change	
(dollars in thousands)	**2020**	**2021**	**$**	**%**
Revenues	$ 278,459	$ 335,854	$ 57,395	20.6 %

Revenues increased $57.4 million, or 20.6%, from $278.5 million in 2020 to $335.9 million in 2021, which was attributable to increased demand for and pricing of our point-to-multi-point products due to increased network traffic, new product introductions and demand for CBRS solutions and our Wi-Fi products, which benefitted from higher volume and pricing of our Wi-Fi 6 and switching products. Complementing this overall trend, revenue growth in 2021 also benefitted from continued expansion of our channel, with more than 11,300 total registered channel partners, which includes over 170 distributors, as of December 31, 2021.

Revenues by product category

			Change	
(dollars in thousands)	**2020**	**2021**	**$**	**%**
Point-to-Multi-Point	$ 172,601	$ 204,756	$ 32,155	18.6 %
Point-to-Point	60,435	60,761	326	0.5 %
Wi-Fi	39,990	66,933	26,943	67.4 %
Other	5,433	3,404	(2,029)	(37.3)%
Total revenues by product category	$ 278,459	$ 335,854	$ 57,395	20.6 %

Point-to-Multi-Point

Our PMP product line comprised 62% of total revenues for 2020 and 61% of total revenues for 2021. PMP revenue growth was due to increased volume and pricing, mostly due to network buildouts in North America, new product introductions, including 60 GHz and demand for our CBRS solutions.

Point-to-Point

PTP revenues remained flat overall, but saw increased demand in the defense sector partially offset by softer demand for backhaul products.

Wi-Fi

Wi-Fi revenues increased primarily as a result of higher volume and pricing, with strength from new product introductions, including Wi-Fi 6 and cnMatrix.

Revenues by geography

(dollars in thousands)	2020	2021	Change $	Change %
North America	$ 147,328	$ 173,491	$ 26,163	17.8 %
Europe, Middle East, Africa	80,927	93,082	12,155	15.0 %
Caribbean and Latin America	29,418	40,974	11,556	39.3 %
Asia Pacific	20,786	28,307	7,521	36.2 %
Total revenues by geography	$ 278,459	$ 335,854	$ 57,395	20.6 %

Revenues increased in 2021 compared to 2020 reflecting higher revenues in all regions. The increased revenues in North America was driven by higher revenues for PMP and Wi-Fi products, driven mostly by higher PMP revenues due to increased volume and pricing along with increased demand for CBRS and robust network traffic and Wi-Fi due to increased volume and pricing, mostly with Wi-Fi 6 and switching products. Europe, Middle East, Africa revenues increased mostly due to higher Wi-Fi revenues from increased volume and pricing, along with new products and higher PMP revenues driven by higher volume and pricing. Caribbean and Latin America revenues increased due to higher Wi-Fi revenues largely due to increase in volume and pricing in hospitality and larger government projects along with higher PMP revenues due to higher pricing and new product introductions. The increase in Asia Pacific revenues was driven by higher PMP revenues and improving Wi-Fi revenues, both due to higher volume and pricing, with higher volumes principally reflecting new product introductions.

Cost of revenues and gross margin

(dollars in thousands)	2020	2021	Change $	Change %
Cost of revenues	$ 139,049	$ 175,058	$ 36,009	25.9 %
Gross margin	50.1 %	47.9 %		(220) bps

Cost of revenues increased $36.0 million, or 25.9%, from $139.0 million for 2020 to $175.0 million for 2021. The increase in cost of revenues was primarily due to increased revenues, but also included higher freight costs as a result of material shortages and COVID-19 surcharges, and increases in freight and logistics charges as a result of increases due to container shortages, use of other distribution, shipment and transportation modes, and increases in costs by logistics and freight providers to meet the high global demand.

Gross margin decreased from 50.1% in 2020 to 47.9% in 2021. The decrease reflects higher logistics costs to meet demand and higher production costs due to increases in component charges as a result of component shortages and increases in freight and logistics costs.

Operating expenses

(dollars in thousands)	2020	2021	Change $	Change %
Research and development	$ 43,188	$ 47,929	$ 4,741	11.0 %
Sales and marketing	36,784	40,787	4,003	10.9 %
General and administrative	28,851	29,490	639	2.2 %
Depreciation and amortization	6,639	6,171	(468)	(7.0)%
Total operating expenses	$ 115,462	$ 124,377	$ 8,915	7.7 %

Research and development

Research and development expense increased $4.7 million, or 11.0%, from $43.2 million in 2020 to $47.9 million in 2021. As a percentage of revenues, research and development expenses decreased from 15.5% in 2020 to 14.3% in 2021. Research and development expense increased mainly due to a $3.0 million increase in payroll-related expenses due to increased headcount and impact of full salaries for all of 2021, $1.4 million higher share-based compensation expense due to new grants issued and addition of employee share purchase program in 2021, $0.9 million increase in corporate bonus accrual due to the increased headcount and salary increases in 2021, along with $2.6 million higher contractor expense due to increases in the number of contractors to support ramping of projects and the impact of lower negotiated rates in 2020. These expenses are partially offset by $2.1 million higher capitalized software expense due to an increase in projects eligible for capitalization, $0.7 million of restructuring expense recognized in 2020 that did not repeat in 2021 and absence of $0.2 million software impairment recognized in 2020.

Sales and marketing

Sales and marketing expense increased $4.0 million, or 10.9%, from $36.8 million in 2020 to $40.8 million in 2021. As a percentage of revenues, sales and marketing expense decreased from 13.2% in 2020 to 12.1% in 2021. Sales and marketing expense increased mainly due to a $2.6 million increase in payroll-related expenses due to increased headcount and impact of full salaries for all of 2021, $1.0 million increase in share-based compensation expense due to new grants issued and addition of employee share purchase program in 2021, and $0.9 million higher variable compensation expense due to increased headcount and increased revenues. These expenses are partially offset by $0.5 million of restructuring expense recognized in 2020 that did not repeat in 2021.

General and administrative

General and administrative expense increased $0.6 million, or 2.2%, from $28.9 million in 2020 to $29.5 million in 2021. As a percentage of revenues, general and administrative expense decreased from 10.4% in 2020 to 8.8% in 2021. The increase in general and administrative expense is mainly due to $1.8 million higher share-based compensation expense due to new grants issued and addition of employee share purchase program in 2021, $1.3 million higher payroll-related expenses due to increased headcount and impact of full salaries for all of 2021, $0.4 million of expense related to the secondary offering completed in June 2021. These expenses are partially offset by $2.9 million lower legal expense, mostly related to the $1.6 million of nonrecurring legal expenses recognized in 2020.

Depreciation and amortization

Depreciation and amortization expense decreased $0.5 million, or 7.0%, from $6.7 million in 2020 to $6.2 million in 2021. The decrease in depreciation and amortization was mostly driven by the decrease in depreciation expense from fully depreciated assets and fully amortized intangibles exceeding the increase in depreciation expense from newly added assets.

Interest expense, net

			Change	
(dollars in thousands)	**2020**	**2021**	**$**	**%**
Interest expense, net	$ 5,326	$ 4,269	$ (1,057)	(19.8)%

Interest expense decreased $1.0 million, or 19.8% from $5.3 million in 2020 to $4.3 million in 2021. The decrease was primarily due to lower debt balances in 2021 compared with 2020 reflecting the mandatory excess cash flow payment of $19.6 million made in the second quarter of 2021. In addition, the decrease resulted from lower interest rates on the term loan beginning in 2021.

Other expense, net

			Change	
(dollars in thousands)	**2020**	**2021**	**$**	**%**
Other expense, net	$ 491	$ 244	$ (247)	(50.3)%

Other expense remained decreased $0.3 million, or 50.3%, from $0.5 million in 2020 to $0.2 million in 2021. The decrease is primarily associated with foreign currency fluctuations.

Benefit for income taxes

			Change
(dollars in thousands)	**2020**	**2021**	**$**
Benefit for income taxes	$ (444)	$ (5,515)	$ (5,071)
Effective income tax rate	(2.4)%	(17.3)%	

Our tax expense changed from a tax benefit of ($0.4) million in 2020 to a tax benefit of ($5.5) million for 2021. The effective tax rates for the years ended December 31, 2020 and 2021 were (2.4)% and (17.3)%, respectively. For the year ended December 31, 2021, our income tax benefit changed by $5.1 from the year ended December 31, 2020 primarily due to release of a valuation allowance against our deferred tax assets of $7.9 million during 2021, versus net utilization of valuation allowance in 2020 of $1.2 million. For the year ended December 31, 2020, the Company’s effective tax rate of (2.4)% differed from the U.S. statutory rate of 21.0% primarily due to a benefit on research and development credit, a benefit on the partial release of a valuation allowance, and partially offset by the tax expense due to the increase of the tax rate applied to UK deferred tax assets. For the year ended December 31, 2021, the Company’s effective tax rate of (17.3)% differed from the U.S. statutory rate of 21.0% primarily due to a benefit on the release of a valuation allowance on the UK deferred tax asset and tax benefits arising on employee restricted share vesting and option exercises. See Note 14 - Income taxes in the Notes to the Consolidated Financial Statements for more information related to income taxes.

Liquidity and Capital Resources

As of December 31, 2021, we had a cash balance of $59.3 million. Our financial condition and liquidity remain strong. We assess our liquidity in terms of our ability to generate adequate cash to fund our operating, investing and financing activities. We believe our existing cash, operating cash flow and revolving credit facilities provide us with the financial flexibility needed to fund normal operating expenses, to meet interest and principal requirements of our outstanding indebtedness, and fund capital expenditures. We believe these needs will be satisfied over at least the next 12 months. Our future capital requirements may vary materially from those currently planned and will depend on many factors, including our rate of revenue growth, the timing and extent of spending to support development efforts, the timing of new product introductions, market acceptance of our products and overall economic conditions. We expect to regularly assess market conditions and may raise additional equity or incur additional debt if and when management, along with our board of directors, determines that doing so is in our best interest.

We refinanced our credit facilities on November 17, 2021 by establishing a new credit facility with Bank of America and extinguishing our existing credit facility with Silicon Valley Bank. The new credit facility with Bank of America allows for total borrowings of $75.0 million, which includes a $30.0 million term loan and a revolving loan of $45.0 million. On November 17, 2021, we borrowed the entire $30.0 million term loan, which was used to pay off the term loan with Silicon Valley Bank. At December 31, 2021, we had $30.0 million outstanding debt on our term loan, including the current portion of $2.6 million. We have $45.0 million available under our revolving loan facility. In accordance with the terms of our credit facility with Bank of America, we are required to pay quarterly principal payments of $0.7 million, commencing with the quarter ending March 31, 2022.

Cash Flows

The following table sets forth summarized cash flow data for the periods indicated (in thousands):

	Years Ended December 31,	
	2020	2021
Cash provided by operating activities	$ 56,901	$ 29,960
Cash used in investing activities	$ (5,400)	$ (10,166)
Cash used in financing activities	$ (8,368)	$ (22,953)

Cash flows from operating activities

Net cash provided by operating activities for 2020 of $56.9 million consisted primarily of net income of $18.6 million, adjustments for depreciation and amortization of $7.8 million, share-based compensation expense of $3.4 million, decrease in provision for inventory excess and obsolescence of $1.9 million and $1.1 million increase in deferred income taxes along with changes in operating assets and liabilities that resulted in net cash inflows of $25.7 million. The changes in operating assets and liabilities consisted primarily of a $11.1 million increase in accrued employee compensation related to higher bonus due to improved financial results in 2020, which amounts were paid in 2021, higher accounts payable of $6.1 million due to timing of purchases and payments, lower inventories of $5.7 million as we implemented inventory management strategies in 2020, along with a reduction in accounts receivable of $3.2 million due to stronger cash collections.

Net cash provided by operating activities for 2021 of $30.0 million consisted primarily of net income of $37.4 million, adjustments for depreciation and amortization of $8.1 million, share-based compensation expense of $7.7 million, and an increase in deferred income taxes of $6.1 million along with changes in operating assets and liabilities that resulted in net cash outflows of $17.0 million. The changes in operating assets and liabilities consisted primarily of a $11.2 million increase in accounts receivable due to higher sales in the last month of the quarter, along with $8.0 million increase in prepaid assets due to prepayments made to suppliers to procure inventory and $2.7 million decrease in accounts payable due to timing of purchases and payments, offset by $2.5 million increase in accrued liabilities, and a $1.9 million increase in accrued employee compensation related to higher bonus due to increased headcount and salaries.

Cash flows from investing activities

Our investing activities for both periods presented consisted of capital expenditures for property, equipment and software in support of the growth of our business. Capital expenditures increased $5.1 million in 2021 due to delaying capital expenditures originally planned in 2020 due to uncertainty around the COVID-19 pandemic. Our investing activities in 2020 included the remaining $0.3 million contingent consideration payment for the Xirrus acquisition paid in February 2020.

Cash flows from financing activities

Net cash used in financing activities of $8.4 million for 2020 was primarily due to payment of $10.0 million in scheduled principal payments due under our term loan facility offset by $1.6 million in proceeds from the exercise of share options.

Net cash used in financing activities of $23.0 million for 2021 was primarily due to payment of $55.3 million on our existing term loan, $2.8 million of taxes paid on net share settlement of equity awards and a $1.2 million payment of debt issuance costs incurred with our new credit facility. These outflows are partially offset by $29.8 million in proceeds received under our new credit facility, $4.8 million in proceeds from the exercise of share options and $1.8 million in proceeds from the issuance of ordinary shares under our employee share purchase program.

Debt

We refinanced our credit facilities on November 17, 2021, by establishing a new credit facility with Bank of America ("BofA Credit Agreement") and extinguishing our existing credit facility with Silicon Valley Bank. The BofA Credit Agreement allows for total borrowings of $75.0 million, which includes a $30.0 million term loan and a revolving loan of $45.0 million. On November 17, 2021, we borrowed the entire $30.0 million term loan, which was used to pay off the term loan with Silicon Valley Bank. At December 31, 2021, we had $30.0 million outstanding debt on our term loan, including the current portion of $2.6 million. The Company has $45.0 million available under the revolving loan.

In accordance with the terms of the BofA Credit Agreement, we are required to pay quarterly principal payments of $0.7 million, commencing with the quarter ending March 31, 2022. The BofA Credit Agreement contains customary representations, warranties and affirmative and negative covenants. Commencing with the year ended December 31, 2021, we are required to maintain a minimum consolidated leverage ratio. As of December 31, 2021, we were in compliance with our consolidated leverage ratio. Commencing with the quarter ended March 31, 2022, in addition to the consolidated leverage ratio, we will be required to maintain a minimum consolidated fixed charge coverage ratio.

Prior to the BofA Credit Agreement, our credit facilities were with Silicon Valley Bank. At December 31, 2020, we had $55.3 million outstanding debt on our term loan with Silicon Valley Bank, including the current portion of $29.7 million. The current portion of debt at December 31, 2020 included $19.7 million related to a required repayment in principal in accordance with the excess cash flow provision in our credit facilities with Silicon Valley Bank based on our calculation of excess cash flow at December 31, 2020, which was paid in May 2021. We had no outstanding debt on our revolving facility with Silicon Valley Bank at December 31, 2020.

The agreement with Silicon Valley Bank contained customary representations, warranties and affirmative and negative covenants. We were required to maintain a quarterly minimum consolidated fixed charge coverage ratio and minimum consolidated leverage ratio, and a monthly minimum adjusted quick ratio. As of December 31, 2020, we were in compliance with all affirmative and negative covenants.

Summary of contractual obligations

We lease office space and equipment under operating leases that run through 2026. Additionally, our BofA Credit Agreement matures and becomes due and payable in November 2026.

A summary of our contractual obligations at December 31, 2021 are as follows (in thousands):

	Payments due by period				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
Operating lease obligations	$ 2,450	$ 3,194	$ 1,262	$ —	$ 6,906
Term credit facility [1]	2,625	5,250	22,125	—	30,000
Term credit facility interest [1]	767	1,358	1,189	—	3,314
Purchase obligations [2]	107,730	767	—	—	108,497
Total [3]	$ 113,572	$ 10,569	$ 24,576	$ —	$ 148,717

(1) These amounts represent the scheduled principal payments based on their contractual maturities related to our term loan with Bank of America and interest payments based on the interest rate in effect on December 31, 2021 of 2.225%. Refer to Note 7 to the Consolidated Financial Statements for additional information regarding our debt obligations.

(2) Our purchase obligations represent amounts included in Accounts payable and Accrued liabilities in our consolidated balance sheet at December 31, 2021 along with unrecorded open purchase orders at December 31, 2021, primarily related to inventory.

(3) Comprises liabilities recorded on the balance sheet of $79.6 million and obligations not recorded on the balance sheet of $69.1 million.

Commitments for purchase obligations has increased from 2020 due to planned revenue growth and the impact from component shortages and extended lead times we are experiencing with our suppliers. In addition to the contractual obligations reported above, we have obligations related to our variable compensation programs of approximately $13.7 million with anticipated payments in March 2022 and is included in Accrued employee compensation in our consolidated balance sheet at December 31, 2021. We believe that cash generated from operations, together with existing sources of liquidity, will satisfy the cash requirements for these contractual obligations.

Critical accounting policies and estimates

Our consolidated financial statements are prepared in accordance with U.S. GAAP. The preparation of these financial statements requires our management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expense and related disclosures. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these judgments and estimates under different assumptions or conditions and any such differences may be material. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates. For a summary of all of our accounting policies, including the accounting policies discussed below, see Note 1, *Description of Business and Summary of Significant Accounting Policies*, in the Notes to Consolidated Financial Statements.

Recognition of revenues

Our revenues are generated primarily from the sale of hardware products, with essential embedded software. Our revenues also include limited amounts for software products, extended warranty on hardware products and subscription services. Revenue is recognized upon transfer of control of promised products to customers in an amount that reflects the consideration we expect to receive in exchange for those products. We generally recognize product revenues at the time of shipment, provided that all other revenue recognition criteria have been met. Revenues are recognized net of estimated stock returns, volume-based rebates and cooperative marketing allowances that we provide to distributors. Estimated stock returns, volume-based rebates and cooperative marketing allowances are based on historical experience together with any known future business trends. The assumptions used to derive these estimates did not change significantly in the current period, nor did the value of each estimate. We recognize revenues on extended warranty on a straight-line basis over the term of the extended warranty. We recognize subscription services revenue ratably over the term in which the services are provided and our performance obligation is satisfied. We determine the appropriate revenue recognition for our contracts with customers by analyzing the type, terms and conditions of each contract or arrangement. Certain of our contracts have multiple performance obligations for which we allocate the transaction price to each performance obligation based on the standalone selling price of each distinct product or service in the contract. The standalone selling price is the price at which we expect to be entitled to in exchange for transferring the promised good or service to the customer. The best evidence of standalone selling price is the observable price of a product or service when the Company sells that product or service separately in similar circumstances and to similar customers. In certain cases, the standalone sales price is not directly observable, and we estimate the transaction price allocated to each performance obligation using the expected cost plus margin approach. When, or as, a performance obligation is satisfied, we recognize as revenue the amount of the transaction price that is allocated to that performance obligation. The transaction price recognized excludes an estimate for the consideration related to products we expect to be returned or amounts we expect to refund.

Inventory and inventory valuation

Inventories are stated at the lower of cost or net realizable value. In determining the cost of raw materials, consumables and goods purchased for resale, the weighted average purchase price is used. For finished goods, cost is computed as production cost including capitalized inbound freight costs.

The valuation of inventory requires us to estimate excess or obsolete inventory. The determination of excess or obsolete inventory is estimated based on a comparison of the quantity and cost of inventory on hand to our forecast of customer demand. The assumptions used to derive this estimate did not change significantly in the current period, nor did the value of the estimate. The actual amount of inventory written off in future periods will likely differ from the inventory excess and obsolete provisions reflected in our consolidated balance sheets due to difference between estimated and actual future demand, which could have a material effect on our net inventory as reported in our consolidated financial statements. Any adjustments to the valuation of inventory are included in cost of revenues.

Product warranties

We provide a standard warranty on our products, with the term depending on the product, and record a liability for the estimated future costs associated with potential warranty claims at the time products are sold. Our responsibility under our standard warranty is the repair or replacement of in-warranty defective product, or to credit the purchase price of the defective product, at our discretions, without charge to the customer. Our estimate of future warranty costs is largely based on historical experience factors, including product failure rates, material usage, and service delivery cost incurred in correcting product failures. These provisions are reviewed and adjusted by management periodically to reflect actual and anticipated experience. The assumptions used to derive this estimate did not change significantly in the current period, nor did the value of the estimate. The warranty costs are reflected in our consolidated statements of operations within cost of revenues.

Income taxes

We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in our consolidated financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statement carrying amount and the tax bases of assets and liabilities using enacted income tax rates in effect for the year in which the differences are expected to be recovered or settled. The effect of a change in income tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

We recognize deferred tax assets to the extent that we believe these assets are more likely than not to be realized. In making such a determination, we consider all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. If we determine that we would be able to realize our deferred tax asset in the future in excess of their net recorded amount, we would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes. Based on 2021 income and forecast of future taxable income, management concluded that all of the valuation allowance on the Company's UK entity's deferred tax assets was no longer needed and recorded a benefit of $7.7 million related to the reversal of this valuation allowance in 2021.

We may be subject to income tax audits in all the jurisdictions in which we operate and, as a result, we must also assess exposures to any potential issues arising from current or future audits of current and prior years' tax returns. Accordingly, we must assess such potential exposures and, where necessary, provide a reserve to cover any expected loss. We recognize the benefit of a tax position if it is more likely than not to be sustained. Recognized tax positions are measured at the largest amount more likely than not of being realized upon settlement. To the extent that we establish a reserve, our income tax expense would be increased. If we ultimately determine that payment of these amounts is unnecessary, we reverse the liability and recognize an income tax benefit during the period in which new information becomes available indicating the liability is no longer necessary. We record an additional income tax expense in the period in which new information becomes available indicating the tax liability is greater than our original estimate.

Share-based compensation

We recognize all share-based compensation expense as a cost in the consolidated financial statements. Equity classified awards are measured at the grant date fair value of the award and expense is recognized, net of estimated forfeitures, on a straight-line basis over the requisite service period for each separately vesting portion of the award and forfeiture rates are periodically updated for actual experience over the vesting term. We estimate the fair value of share options granted using the Black-Sholes option pricing model. The assumptions used to derive this estimate did not change significantly in the current period, nor did the value of the estimate.

JOBS Act accounting election

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, are subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Interest rate risk

We had $30.0 million of debt outstanding as of December 31, 2021 under our BofA Credit Agreement. We are exposed to interest rate risk from fluctuations in the US Dollar LIBOR rate that is a component of the interest rate used to calculate interest expense on the debt.

Interest accrues on the outstanding principal amount of the term loan on a quarterly basis and is equal to the selected US Dollar LIBOR rate plus an applicable margin between 1.75% and 2.25%. The applicable margin was originally set at 2.0%, and is affected by our financial performance as measured by our consolidated leverage ratio. The rate on the term loan was 2.225% as of December 31, 2021. A hypothetical 100-basis point increase in interest rates, and assuming a constant base rate and required principal payments, would result in an additional $0.3 million in interest expense related to our external debt per year.

In July 2017, the United Kingdom’s Financial Conduct Authority ("FCA"), which regulates LIBOR, announced it will no longer compel banks to submit rates for the calculation of LIBOR after 2021. In May 2021, the FCA confirmed the 1-week and 2-month US Dollar LIBOR tenors would cease on December 31, 2021, but the remaining five US Dollar tenors (overnight, 1-month, 3-month, 6-month and 12-month) will not cease until June 30, 2023. The Company's current term loan with Bank of America was borrowed as a Eurodollar loan which is indexed to the Eurodollar Rate (the rate equal to the London Interbank Offered Rate). The BofA Credit Agreement matures on November 17, 2026, which is after the cessation of all tenors of the US Dollar LIBOR rate.

The BofA Credit Agreement contemplates the discontinuation of LIBOR and provides that a benchmark replacement rate shall be determined by reference to other applicable rates and additionally allows the Company to switch to a Base Rate loan, as defined in the BofA Credit Agreement. The Company will continue to actively assess the related opportunities and risks involved in this transition.

Foreign currency exchange risk

We conduct business in all parts of the world and are thereby exposed to market risks related to fluctuations in foreign currency exchange rates. The U.S. dollar is the single largest currency in which our revenue contracts are denominated. Any decline in the value of local foreign currencies against the U.S. dollar results in our products and services being more expensive to a potential foreign customer. In those instances where our goods and services have already been sold, receivables may be more difficult to collect. Additionally, in jurisdictions where the revenue contracts are denominated in U.S. dollars and operating expenses are incurred in the local currency, any decline in the value of the U.S. dollar will have an unfavorable impact to operating margins. We have not entered into any foreign currency hedging transactions. We do not purchase or hold any derivative financial instruments for speculation or arbitrage.

We do not hold any cash in any investment accounts and all cash is deposited with financial institutions that management believes are of high credit quality. Our cash consists primarily of U.S. dollar denominated demand accounts.

Credit risk

We consider the credit risk of all customers and regularly monitor credit risk exposures in our trade receivables. Our standard credit terms with our customers are generally net 30 to 60 days. We had two customers representing more than 10% of trade receivables at December 31, 2020 and one customer representing more than 10% of trade receivables at December 31, 2021. In addition, we had two customers representing more than 10% of revenue for the years ended December 31, 2020 and 2021.

Item 8. Financial Statements and Supplementary Data.

The information required by this item is incorporated by reference to the consolidated financial statements and accompanying notes set forth on pages F-1 through F-37 of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, performed an evaluation of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended, or the Exchange Act), as of December 31, 2021, the end of the period covered by this Annual Report on Form 10-K. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its Chief Executive and Chief Financial Officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and our management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded, that as of such date, our disclosure controls and procedures were effective at a reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with U.S. GAAP. Under the supervision of, and with the participation of our Chief Executive Officer and Chief Financial Officer, management assessed the effectiveness of internal controls over financial reporting as of December 31, 2021.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management based its assessment on criteria established in "Internal Control Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2021.

This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm due to a transition period established by the rules of the SEC for "emerging growth companies".

Changes in Internal Control

There were no changes in our internal control over financial reporting identified in management's evaluation pursuant to Rules 13a-15(e) and 15d-15(e) of the Exchange Act for the year ended December 31, 2021 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Effectiveness of Controls and Procedures

None.

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information required by Part III, Item 10, will be included in our Proxy Statement relating to our 2022 annual meeting of shareholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2021, and is incorporated herein by reference.

Item 11. Executive Compensation.

Information required by Part III, Item 11, will be included in our Proxy Statement relating to our 2022 annual meeting of shareholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2021, and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters.

Information required by Part III, Item 12, will be included in our Proxy Statement relating to our 2022 annual meeting of shareholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2021, and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information required by Part III, Item 13, will be included in our Proxy Statement relating to our 2022 annual meeting of shareholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2021, and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

Information required by Part III, Item 14, will be included in our Proxy Statement relating to our 2022 annual meeting of shareholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2021, and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

Documents filed as part of this annual report on Form 10-K:

(1) ***Financial Statements***. The following index lists consolidated financial statements and notes thereto filed as part of this annual report on Form 10-K:

(2) ***Financial Statement Schedules.*** All schedules have been omitted because they are not applicable as the required information is included in the consolidated financial statements or notes thereto.

(3) ***Exhibits.*** A list of exhibits filed or furnished with this report on Form 10-K (or incorporated by reference to exhibits previously files by Cambium) is provided in the accompanying Exhibit Index.

Item 16. Form 10-K Summary

None.

Exhibit Index

Exhibit Number	Exhibit Description	Incorporated by Reference			
		Form	File No.	Exhibit	Filing Date
1.1	Underwriting Agreement dated December 3, 2020 by and among Cambium Networks Corporation, the Underwriters and the Selling Shareholders	8-K	001-38952	1.1	December 4, 2020
3.1	Form of Amended and Restated Memorandum and Articles of Association to be effective upon completion of this offering	S-1/A	333-231789	3.1	June 13, 2019
4.1	Form of Ordinary Share Certificate of Registrant	S-1/A	333-231789	4.1	June 24, 2019
4.2	Form of Shareholders Agreement by and among Registrant and certain security holders of Registrant to be effective upon completion of this offering	S-1/A	333-231789	4.2	June 13, 2019
4.3	Description of Registrant's Securities Registered Pursuant to Section 12 of the Securities and Exchange Act of 1934	10-K	001-38952	4.3	March 1, 2021
10.1+	Form of Indemnification Agreement entered into between Registrant and its directors and executive officers	S-1	333-231789	10.1	May 29, 2019
10.2	Renewal Lease by Reference to an Existing Lease, Part Unit A, Linhay Business Park, Eastern Road, Ashburton, Devon TQ13 7UP, United Kingdom, dated as of November 22, 2016, by and between Registrant and Stephanie Myers Palk, Richard John Palk and Alison June Palk	S-1	333-231789	10.2	May 29, 2019
10.3	Renewal Lease by Reference to an Existing Lease, Unit B2/3, Linhay Business Park, Eastern Road, Ashburton, Devon TQ13 7UP, United Kingdom, dates as of November 22, 2016, by and between Registrant and Stephanie Myers Palk, Richard John Palk and Alison June Palk	S-1	333-231789	10.3	May 29, 2019
10.4	Renewal Lease by Reference to an Existing Lease, Unit B2/3, Linhay Business Park, Eastern Road, Ashburton, Devon TQ13 7UP, United Kingdom, dated as of April 9, 2018, by and between Registrant and Stephanie Myers Palk, Richard John Palk and Alison June Palk	S-1	333-231789	10.4	May 29, 2019
10.5	Renewal Lease by Reference to an Existing Lease, Unit D1, Linhay Business Park, Eastern Road, Ashburton, Devon TQ13 7UP, United Kingdom, dated as of November 22, 2016, by and between Registrant and Stephanie Myers Palk, Richard John Palk and Alison June Palk	S-1	333-231789	10.5	May 29, 2019
10.6	Renewal Lease by Reference to an Existing Lease, Unit D1, Linhay Business Park, Eastern Road, Ashburton, Devon TQ13 7UP, United Kingdom, dated as of April 9, 2018, by and between Registrant and Stephanie Myers Palk, Richard John Palk and Alison June Palk	S-1	333-231789	10.6	May 29, 2019
10.7	Office Lease, dated as of January 31, 2012, by and between Cambium Networks, Inc. and Atrium at 3800 Golf LLC	S-1	333-231789	10.7	May 29, 2019

10.8	The First Amendment, dated March 6, 2012, by and between Cambium Networks, Inc. and Atrium at 3800 Golf LLC	S-1	333-231789	10.8	May 29, 2019
10.9	The Second Amendment, dated February 21, 2013, by and between Cambium Networks, Inc. and Atrium at 3800 Golf LLC	S-1	333-231789	10.9	May 29, 2019
10.10	The Third Amendment, dated June 3, 2015, by and between Cambium Networks, Inc. and Atrium at 3800 Golf LLC	S-1	333-231789	10.10	May 29, 2019
10.11	The Fourth Amendment, dated January 18, 2018, by and between Cambium Networks, Inc. and Atrium at 3800 Golf LLC	S-1	333-231789	10.11	May 29, 2019
10.12	Lease Deed, dated as of June 20, 2016, by and between Cambium Networks Consulting Private Limited and Umiya Holdings Private Limited	S-1	333-231789	10.12	May 29, 2019
10.13	Lease, dated as of December 4, 2017, by and between Cambium Networks, Inc. and Silicon Valley Center Office LLC	S-1	333-231789	10.13	May 29, 2019
10.14++	Corporate Supply Agreement between Cambium Networks Limited and Flextronics Telecom Systems, Ltd. dated as of April 23, 2012	S-1	333-231789	10.14	May 29, 2019
10.15+	2019 Employee Share Purchase Plan	S-1/A	333-231789	10.15	June 13, 2019
10.16	Intentionally Omitted				
10.17+	2019 Share Incentive Plan	S-1/A	333-231789	10.17	June 13, 2019
10.18+	Form of Share Option Grant Notice and Restricted Share Award Agreement under 2019 Share Incentive Plan (to be executed by Atul Bhatnagar)	S-1/A	333-231789	10.18	June 13, 2019
10.19+	Form of Restricted Share Grant Notice and Restricted Share Award Agreement under 2019 Share Incentive Plan (to be executed by Atul Bhatnagar)	S-1/A	333-231789	10.19	June 13, 2019
10.20+	Form of Restricted Share Grant Notice and Restricted Share Award Agreement under 2019 Share Incentive Plan (to be executed by Atul Bhatnagar, Bryan Sheppeck and Ronald Ryan)	S-1/A	333-231789	10.20	June 13, 2019
10.21	Amended and Restated Credit Agreement, dated as of December 21, 2017, by and among Registrant, as Holdings, Cambium Networks, Ltd., as Borrower, Silicon Valley Bank, as Administrative Agent and Issuing Lender, and the lenders party thereto and the other loan parties thereto	S-1	333-231789	10.21	May 29, 2019
10.22	Waiver and First Amendment to Amended and Restated Credit Agreement, dated as of November 21, 2018, by and among Vector Cambium Holding (Cayman), L.P., as Holdings, Cambium Networks, Ltd., as Borrower, Silicon Valley Bank, as Administrative Agent and Issuing Lender, and the lenders party thereto and the other loan parties thereto	S-1	333-231789	10.22	May 29, 2019

10.23	Consent, Waiver and Second Amendment to Amended and Restated Credit Agreement, dated as of April 26, 2019, by and among Vector Cambium Holdings (Cayman), L.P. as Holdings, Cambium Networks, Ltd., as Borrower, Silicon Valley Bank, as Administrative Agent and Issuing Lender, and the lenders party thereto and the other loan parties thereto	S-1	333-231789	10.23	May 29, 2019
10.24+	Employment agreement, dated as of February 15, 2013, between Cambium Networks, Inc. and Atul Bhatnagar	S-1/A	333-231789	10.24	June 13, 2019
10.25+	Sales Incentive Plan Document for Regional Vice Presidents: SVP Global Channels	S-1/A	333-231789	10.25	June 13, 2019
10.26+	Sales Incentive Plan Document for SVP Global Sales	S-1/A	333-231789	10.26	June 13, 2019
10.27+	Form of Executive Restricted Share Unit Grant	S-1/A	333-231789	10.27	June 24, 2019
10.28+	Form of Executive Stock Option Grant	S-1/A	333-231789	10.28	June 24, 2019
10.29+	Form of Director Stock Option Grant	S-1/A	333-231789	10.29	June 24, 2019
10.30	Third Amendment to Amended and Restated Credit Agreement dated June 28, 2019	8-K	001-38952	10.30	July 1, 2019
10.31	Sublease, dated December 1, 2019, by and between Cambium Networks, Inc. and Agfa Corporation	10-K	001-38952	10.31	March 24, 2020
10.32+	Offer Letter, dated as of June 14, 2018, between Cambium Networks, Inc. and Stephen Cumming	10-K	001-38952	10.32	March 24, 2020
10.33+	Amended Offer Letter, dated as of March 19, 2020, between Cambium Networks, Inc. and Stephen Cumming	10-K	001-38952	10.33	March 24, 2020
10.34	Credit Agreement dated as of November 17, 2021, between Cambium Networks and Bank of America	8-K	001-38952	10.34	November 18, 2021
10.35	Security Agreement dated as of November 17, 2021 between Cambium Networks and Bank of America	8-K	001-38952	10.35	November 18, 2021
10.36*	Lease Deed, dated as of April 12, 2021, by and between Cambium Networks Private Limited and Mr. Jimmy Paymaster and Qualitas Property Consulting LLP				
10.37*	Lease Deed, dated as of August 5, 2021, by and between Cambium Networks Private Limited and Umiya Holdings Private Limited and Others				
10.38*	First Amendment to Lease, dated as of December 9 2021, by and between Cambium Networks, Inc. and Silicon Valley Center Office LLC				
21.1	Subsidiaries of the Registrant	S-1	333-231789	21.1	May 29, 2019
23.1*	Consent of KPMG LLP, independent registered public accounting firm				

31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

+ Indicates management contract or compensatory plan

++ Confidential treatment has been granted for portions of this exhibit. These portions have been omitted and have been filed separately with the SEC.

Portions of the exhibit have been excluded because it both (i) is not material and (ii) would be competitively harmful if publicly disclosed.

* Filed herewith.

** The certifications furnished in Exhibit 32.1 and 32.2 hereto are deemed to accompany this Annual Report on Form 10-K and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

Cambium Networks Corporation

Date: February 24, 2022

By: /s/ Stephen Cumming
Stephen Cumming
Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Name	Title	Date
/s/ Atul Bhatnagar **Atul Bhatnagar**	President and Chief Executive Officer (Principal Executive Officer)	February 24, 2022
/s/ Stephen Cumming **Stephen Cumming**	Chief Financial Officer (Principal Financial Officer)	February 24, 2022
/s/ Marc Nelson **Marc Nelson**	Chief Accounting Officer (Principal Accounting Officer)	February 24, 2022
/s/ Robert Amen **Robert Amen**	Chairman of the Board	February 24, 2022
/s/ Alexander R. Slusky **Alexander R. Slusky**	Director	February 24, 2022
/s/ Bruce Felt **Bruce Felt**	Director	February 24, 2022
/s/ Vikram Verma **Vikram Verma**	Director	February 24, 2022
/s/ Kevin Lynch **Kevin Lynch**	Director	February 24, 2022

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Cambium Networks Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Cambium Networks Corporation and subsidiaries (the Company) as of December 31, 2020 and 2021, the related consolidated statements of operations, comprehensive (loss) income, shareholders' (deficit) equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2019.

Chicago, Illinois
February 24, 2022

CAMBIUM NETWORKS CORPORATION
Consolidated Balance Sheets
as of December 31, 2020 and 2021
(in thousands, except for share and per share amounts)

	December 31, 2020	December 31, 2021
ASSETS		
Current assets		
Cash	$ 62,472	$ 59,291
Receivables, net	58,114	69,773
Inventories, net	33,962	33,777
Recoverable income taxes	1,420	860
Prepaid expenses	4,143	12,170
Other current assets	5,024	4,718
Total current assets	165,135	180,589
Noncurrent assets		
Property and equipment, net	7,535	10,490
Software, net	3,438	5,867
Operating lease assets	5,083	5,899
Intangible assets, net	12,895	10,777
Goodwill	9,842	9,842
Deferred tax assets, net	1,537	7,604
Other noncurrent assets	288	1,200
TOTAL ASSETS	$ 205,753	$ 232,268
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 30,859	$ 28,241
Accrued liabilities	20,160	21,948
Employee compensation	14,911	16,601
Current portion of long-term external debt, net	29,201	2,489
Deferred revenues	6,471	6,880
Other current liabilities	6,009	5,981
Total current liabilities	107,611	82,140
Noncurrent liabilities		
Long-term external debt, net	24,957	26,965
Deferred revenues	4,448	5,363
Noncurrent operating lease liabilities	3,332	4,112
Other noncurrent liabilities	2,018	1,551
Total liabilities	142,366	120,131
Shareholders' equity		
Share capital; $0.0001 par value; 500,000,000 shares authorized at December 31, 2020 and December 31, 2021; 26,126,775 shares issued and 26,034,526 outstanding at December 31, 2020 and 26,892,082 shares issued and 26,735,175 outstanding at December 31, 2021	3	3
Additional paid in capital	109,837	124,117
Treasury shares, at cost, 92,146 shares at December 31, 2020 and 156,907 shares at December 31, 2021	(1,090)	(3,906)
Accumulated deficit	(44,799)	(7,378)
Accumulated other comprehensive loss	(564)	(699)
Total shareholders' equity	63,387	112,137
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 205,753	$ 232,268

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CAMBIUM NETWORKS CORPORATION
Consolidated Statements of Operations
for the Years ended December 31, 2019, 2020 and 2021
(in thousands, except for share and per share amounts)

	Year Ended December 31,		
	2019	2020	2021
Revenues	$ 267,028	$ 278,459	$ 335,854
Cost of revenues	135,799	139,049	175,058
Gross profit	131,229	139,410	160,796
Operating expenses			
Research and development	47,692	43,188	47,929
Sales and marketing	46,253	36,784	40,787
General and administrative	30,125	28,851	29,490
Depreciation and amortization	5,858	6,639	6,171
Total operating expenses	129,928	115,462	124,377
Operating income	1,301	23,948	36,419
Interest expense, net	8,076	5,326	4,269
Other expense, net	546	491	244
(Loss) income before income taxes	(7,321)	18,131	31,906
Provision (benefit) for income taxes	10,280	(444)	(5,515)
Net (loss) income	$ (17,601)	$ 18,575	$ 37,421
(Loss) earnings per share			
Basic	$ (0.89)	$ 0.72	$ 1.42
Diluted	$ (0.89)	$ 0.70	$ 1.31
Weighted-average number of shares outstanding to compute net (loss) earnings per share			
Basic	19,741,764	25,707,092	26,421,087
Diluted	19,741,764	26,403,112	28,628,136
Share-based compensation included in costs and expenses:			
Cost of revenues	$ 211	$ 67	$ 152
Research and development	5,363	1,599	3,044
Sales and marketing	4,185	980	1,935
General and administrative	7,937	790	2,586
Total	$ 17,696	$ 3,436	$ 7,717

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CAMBIUM NETWORKS CORPORATION
Consolidated Statements of Comprehensive (Loss) Income
for the Years ended December 31, 2019, 2020 and 2021
(in thousands)

	Years Ended December 31,		
	2019	2020	2021
Net (loss) income	$ (17,601)	$ 18,575	$ 37,421
Other comprehensive loss			
Foreign currency translation adjustment	(158)	(185)	(135)
Comprehensive (loss) income	**$ (17,759)**	**$ 18,390**	**$ 37,286**

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CAMBIUM NETWORKS CORPORATION
Consolidated Statements of Shareholders' (Deficit) Equity
for the Years ended December 31, 2019, 2020 and 2021
(in thousands)

	Share Capital							
	Shares	**Amount**	**Additional paid in capital**	**Capital contribution**	**Treasury shares**	**Accumulated deficit**	**Accumulated other comprehensive loss**	**Total shareholders' (deficit) equity**
Balance at December 31, 2018	77	$ —	$ 772	$ 24,651	$ —	$ (45,773)	$ (221)	$ (20,571)
Net loss	—	—	—	—	—	(17,601)	—	(17,601)
Share-based compensation	—	—	17,696	—	—	—	—	17,696
Issuance of shares upon vesting of restricted share units	29	—	—	—	—	—	—	—
Issuance of shares in Recapitalization and related reclassification	19,848	2	24,651	(24,651)	—	—	—	2
Issuance of shares in initial public offering, net of issuance costs of $8,228	5,800	1	61,372	—	—	—	—	61,373
Treasury shares withheld for net settlement	(81)	—	282	—	(1,094)	—	—	(812)
Foreign currency translation	—	—	—	—	—	—	(158)	(158)
Balance at December 31, 2019	25,673	3	104,773	—	(1,094)	(63,374)	(379)	39,929
Net income	—	—	—	—	—	18,575	—	18,575
Share-based compensation	—	—	3,436	—	—	—	—	3,436
Issuance of vested shares	234	—	—	—	—	—	—	—
Proceeds from exercise of share options	139	—	1,628	—	—	—	—	1,628
Treasury shares withheld for net settlement	(11)	—	—	—	4	—	—	4
Foreign currency translation	—	—	—	—	—	—	(185)	(185)
Balance at December 31, 2020	26,035	3	109,837	—	(1,090)	(44,799)	(564)	63,387
Net income	—	—	—	—	—	37,421	—	37,421
Share-based compensation	—	—	7,717	—	—	—	—	7,717
Issuance of ordinary shares	82	—	1,756	—	—	—	—	1,756
Issuance of vested shares	229	—	—	—	—	—	—	—
Proceeds from exercise of share options	454	—	4,807	—	—	—	—	4,807
Treasury shares withheld for net settlement	(65)	—	—	—	(2,816)	—	—	(2,816)
Foreign currency translation	—	—	—	—	—	—	(135)	(135)
Balance at December 31, 2021	26,735	$ 3	$ 124,117	$ —	$ (3,906)	$ (7,378)	$ (699)	$ 112,137

The accompanying Notes are an integral part of these Consolidated Financial Statements.

CAMBIUM NETWORKS CORPORATION
Consolidated Statements of Cash Flows
for the Years ended December 31, 2019, 2020 and 2021
(in thousands)

	Years Ended December 31, 2019	2020	2021
Cash flows from operating activities:			
Net (loss) income	$ (17,601)	$ 18,575	$ 37,421
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation	3,583	3,685	3,356
Amortization of software and intangible assets	2,784	3,583	3,621
Amortization of debt issuance costs	1,141	546	1,130
Share-based compensation	17,696	3,436	7,717
Deferred income taxes	7,402	(1,072)	(6,065)
Provision for inventory excess and obsolescence	196	1,896	11
Other	115	540	(207)
Change in assets and liabilities:			
Receivables	622	3,165	(11,174)
Inventories	(7,634)	5,696	174
Prepaid expenses	(1,847)	1,163	(8,034)
Accounts payable	2,096	6,097	(2,710)
Accrued employee compensation	14	11,116	1,885
Accrued liabilities	(1,296)	1,495	2,517
Accrued Sponsor interest and payables	(5,457)	—	—
Other assets and liabilities	1,739	(3,020)	318
Net cash provided by operating activities	3,553	56,901	29,960
Cash flows from investing activities:			
Purchase of property and equipment	(3,002)	(3,407)	(6,259)
Purchase of software	(944)	(1,659)	(3,907)
Cash paid for acquisitions	(4,666)	(334)	—
Net cash used in investing activities	(8,612)	(5,400)	(10,166)
Cash flows from financing activities:			
Proceeds from issuance of term loan	—	—	29,812
Proceeds from issuance of revolver debt	—	10,000	—
Repayment of term loan	(30,212)	(10,000)	(55,250)
Repayment of revolver debt	(10,000)	(10,000)	—
Payment of debt issuance costs	(336)	—	(1,220)
Proceeds from initial public offering, net of underwriters commission and fees	65,988	—	—
Issuance of ordinary shares	—	—	1,756
Payment of deferred offering costs	(4,616)	—	—
Proceeds from share option exercises	—	1,628	4,807
Taxes paid related to net share settlement of equity awards	(802)	4	(2,816)
Payment to extinguish debt	—	—	(42)
Net cash provided by (used in) financing activities	20,022	(8,368)	(22,953)
Effect of exchange rate on cash	(58)	(7)	(22)
Net increase (decrease) in cash	14,905	43,126	(3,181)
Cash, beginning of period	4,441	19,346	62,472
Cash, end of period	$ 19,346	$ 62,472	$ 59,291
Supplemental disclosure of cash flow information:			
Income taxes paid	$ 1,702	$ 2,232	$ 779
Interest paid	$ 6,455	$ 3,998	$ 2,062
Significant non-cash activities:			
Issuance of shares for unreturned capital and accumulated yield	$ 49,252	$ —	$ —

The accompanying Notes are an integral part of these Consolidated Financial Statements.

Note 1. Description of Business and Summary of Significant Accounting Policies

Business

Cambium Networks Corporation ("Cambium" or "Cambium Networks" or the "Company"), incorporated under the laws of the Cayman Islands, is a holding company whose principal operating entities are Cambium Networks, Ltd. (UK), Cambium Networks, Inc. (USA), and Cambium Networks Private Limited (India). On October 28, 2011, Cambium acquired the point-to-point ("PTP") and point-to-multi-point ("PMP") businesses from Motorola Solutions, Inc. in an acquisition funded by investment funds affiliated with Vector Capital ("Sponsor") and Cambium Networks became the renamed entity subsequent to the acquisition.

Cambium Networks Corporation and its wholly owned subsidiaries provide fixed wireless broadband and Wi-Fi networking infrastructure solutions that work for businesses, communities and cities worldwide. Cambium Networks' radios are deployed to connect people, places and things with a unified fixed wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud. The Company's solutions are deployed in networks by service providers, enterprises, industrial and government connectivity solutions in urban, suburban and rural environments.

The Company operates on a calendar year ending December 31. As such, all references to 2019, 2020 and 2021 contained within these notes relate to the calendar year, unless otherwise indicated.

Basis of Presentation

The Company's consolidated financial statements and accompanying notes are prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") and include the accounts of Cambium Networks Corporation and its wholly owned subsidiaries. All intercompany balances and transactions have been eliminated.

The Company has reclassified certain prior period amounts to conform to the current period's presentation.

On June 6, 2019, the Company completed a 100:1 share subdivision to its sole shareholder of record. Accordingly, all share and per share amounts for all periods presented in these consolidated financial statements and notes thereto have been adjusted retrospectively to reflect the subdivision.

Initial public offering

The Company's registration statement on Form S-1 (the "IPO Registration Statement") related to its initial public offering ("IPO") was declared effective on June 25, 2019, and the Company's ordinary shares began trading on the Nasdaq Global Market on June 26, 2019. On June 28, 2019, the Company completed its IPO, in which the Company sold 5,800,000 shares at a price of $12.00 per share. The Company received aggregate net proceeds of $66.0 million after deducting underwriting discounts and commissions of $3.6 million. As of December 31, 2019, the Company used the proceeds from its IPO to pay offering costs of $4.6 million, paydown debt of $30.7 million, pay management fees owed to Vector Capital of $5.6 million, and pay $4.7 million to acquire select assets and assume select liabilities of the Xirrus Wi-Fi business from Riverbed Technology, Inc.

Immediately prior to the completion of the IPO, the Company effected a recapitalization, which comprised (i) an increase in the authorized and outstanding shares held by Vector Cambium Holdings (Cayman), L.P. ("VCH, L.P.") and (ii) the exchange of the vested share-based compensation awards held by its employees for the Company's shares and unvested share-based compensation awards for restricted share awards or restricted share units issued by the Company, in each case on a value-for-value basis (the "Recapitalization").

Immediately prior to the completion of the IPO, the Company filed its Amended and Restated Memorandum and Articles of Association, which authorizes a total of 500,000,000 ordinary shares. Upon the filing of the Amended and Restated Memorandum and Articles of Association, based on the IPO price of $12.00 per share as part of the Recapitalization described above, the Company (i) issued additional shares to VCH, L.P., such that its aggregate shareholding in it became 17,704,754 shares, (ii) issued 2,140,168 net shares to its employees and service providers and (iii) granted 240,037 restricted share awards or restricted share units in respect of shares that would be subject to vesting based on continued employment with or provision of services to the Company. The Company recorded non-cash share-based compensation expense of $15.4 million in June 2019 related to the aforementioned issuance of the shares to its employees and service providers. In addition, the Company issued an aggregate 2,172,000 share options and restricted share units to employees and directors, effective upon pricing of the IPO of $12.00 per share.

Use of Accounting Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, the Company evaluates these estimates, including those related to the provision for excess and obsolete inventory, the carrying amount of estimated inventory returns, the estimated amount expected to be refunded to customers in respect of inventory returns, fair value of equity awards granted to employees and the associated forfeiture rates, fair value of assets acquired, liabilities assumed, goodwill and identifiable intangible assets in business combinations, leases, provision for income taxes, recoverability of deferred tax assets. The Company bases estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Actual results could differ from those estimates.

Segments

Management has determined that it operates as one operating segment and one reporting unit as it only reports financial information on an aggregate and consolidated basis to its Chief Executive Officer, who is the Company's chief operating decision maker ("CODM"). Decisions about resource allocation or operating performance assessments are not made below a total company level. Consequently, impairment testing of goodwill is performed at the consolidated level as one reporting unit.

Recognition of revenues

Revenues consist primarily of revenues from the sale of hardware products with essential embedded software. Revenues also include limited amounts for software products, extended warranty on hardware products and software subscription services. Substantially all products are sold through distributors and other channel partners, such as resellers and systems integrators.

The Company recognizes revenue to reflect the transfer of control of promised products or services to a customer in an amount that reflects the consideration to which the Company expects to be entitled in exchange for products or services.

The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

The Company identifies its distinct performance obligations under each contract. A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. Hardware products with essential embedded software, software products, and extended warranty on hardware products have been identified as separate performance obligations.

The transaction price is the amount of consideration to which the Company expects to be entitled in exchange for transferring products or services to a customer. Exchanges made as part of the Company's stock rotation program meet the definition of a right of return. An adjustment to revenue is made to adjust the transaction price to exclude the consideration related to products expected to be returned. The Company records an asset at the carrying amount of the estimated stock returns and a liability for the estimated amount expected to be refunded to the customer. The transaction price also excludes other forms of consideration provided to the customer, such as volume-based rebates and cooperative marketing allowances.

The Company recognizes revenue when, or as, it satisfies a performance obligation by transferring control of a promised product or service to a customer. Revenue from hardware products with embedded software is recognized when control is transferred to the customer, which is typically at the time of shipment. Software revenue is from perpetual license software and is recognized at the point in time the customer is able to use or benefit from the software. Extended warranty is available for purchase on hardware products and is a performance obligation that is satisfied over time, beginning on the effective date of the warranty term and ending on the expiration of the warranty term. The Company recognizes revenue on extended warranties on a straight-line basis over the warranty period. Revenue from subscription services is recognized ratably over the term in which the services are provided and our performance obligation is satisfied.

Multiple performance obligations

The Company enters into revenue arrangements that may consist of multiple performance obligations, such as hardware with embedded essential software and extended warranty. The Company allocates the transaction price to each performance obligation on a relative standalone selling price basis for each distinct product or service in the contract. The best evidence of standalone selling price is the observable price of a product or service when the Company sells that product or service separately in similar circumstances and to similar customers. If a standalone selling price is not directly observable, the Company estimates the transaction price allocated to each performance obligation using the expected costs plus a margin approach.

Cash

The Company deposits cash with financial institutions that management believes are of high credit quality. The Company's cash consists primarily of U.S. dollar denominated demand accounts.

Receivables and concentration of credit risk

Trade accounts receivable are recorded at invoiced amounts, net of the allowance for credit losses. The Company considers the credit risk of all customers and regularly monitors credit risk exposure in its trade receivables. The Company's standard credit terms with their customers are generally net 30 to 60 days. The Company had two customers representing more than 10% of trade receivables at December 31, 2020 and one customer representing more than 10% of trade receivables at December 31, 2021. The Company had two customers representing more than 10% of revenues for the years ended December 31, 2019, 2020 and 2021.

The Company establishes an allowance for credit losses to present the net amount of accounts receivable expected to be collected. The allowance is determined by using the loss-rate method, which requires an estimation of loss rates based on historical loss experience adjusted for factors that are relevant to determining the expected collectability of accounts receivable. Some of these factors include macroeconomic conditions that correlate with historical loss experience, delinquency trends, aging behavior of receivables, and credit and liquidity indicators for individual customers.

Inventory

The Company's inventories are primarily finished goods for resale and, to a lesser extent, raw materials, which have been either consigned to the Company's third-party manufacturers or are held by the Company. Inventories are stated at the lower of cost or net realizable value. In determining the cost of raw materials, consumables and goods purchased for resale, the weighted average purchase price is used. For finished goods, cost is computed as production cost including capitalized inbound freight costs.

The valuation of inventory also requires the Company to estimate excess or obsolete inventory. The determination of excess or obsolete inventory is estimated based on a comparison of the quantity and cost of inventory on hand to the Company's forecast of customer demand and in consideration of historical usage. Any adjustments to the valuation of inventory are included in cost of revenues.

Property and equipment

Per ASC 360, *Property, Plant, and Equipment*, property and equipment are stated at cost. The Company calculates depreciation expense using the straight-line method over the estimated useful lives of each asset based on its asset class. Leasehold improvements are amortized over the shorter of their useful lives or the lease term. See Note 4 – Property and equipment for the useful lives for each asset class.

Upon retirement or disposition, the asset cost and related accumulated depreciation are removed with any gain or loss recognized in operating expense in the Consolidated Statements of Operations. For the years ended 2019, 2020 and 2021, the loss recognized was immaterial.

Software

Software may be purchased or developed internally for internal use. Costs related to internal use software are accounted for in accordance with ASC 350-40, *Internal Use Software*, where the expected life is greater than one year. Costs are expensed as incurred during the preliminary project stage of an internal use software project. Costs are capitalized once the project has been approved by management and is in the application development stage. Post implementation/operation costs, such as maintenance and training costs, are expensed as incurred. Any costs incurred to provide upgrades or enhancements are capitalized only if they provide additional functionality that did not previously exist.

Amortization of internal use software begins when the software is ready for internal use and is amortized over its estimated useful life. The amortization expense for internal use software is computed using the straight-line method over three to seven years.

Costs related to certain software, which is available for sale, are capitalized in accordance with ASC 985-20, *Costs of Software to be Sold, Leased, or Marketed*, when the resulting product reaches technological feasibility. The Company generally determines technological feasibility when it has a detailed program design that takes product function, feature and technical requirements to their most detailed, logical form and the product is ready for coding. The Company does not typically capitalize costs related to the development of first-generation product offerings as technological feasibility generally coincides with general availability of the software.

Amortization of software costs to be sold or marketed externally begins when the product is available for sale to customers and is amortized using the straight-line method over its estimated useful life of three years.

Business Combinations

The Company applies the provisions of ASC 805, *Business Combinations*, in the accounting for its acquisitions. It requires the Company to recognize separately from goodwill the assets acquired and the liabilities assumed at their acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred and the net of the acquisition date fair values of the assets acquired and the liabilities assumed. While the Company uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date, its estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, it records adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the Consolidated Statements of Operations.

Critical accounting estimates in valuing certain intangible assets include but are not limited to future expected cash flows from customer relationships, as well as assumptions about customer attrition rate.

Other estimates associated with the accounting for acquisitions may change as additional information becomes available regarding the assets acquired and liabilities assumed.

Fair Value

ASC 820, *Fair Value Measurements and Disclosures* (“ASC 820”) defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. ASC 820 requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. The fair value hierarchy prioritizes the inputs into three levels that may be used in measuring fair value as follows:

Level 1 – observable inputs which include quoted prices in active markets for identical assets or liabilities.

Level 2 – inputs which include observable inputs other than Level 1, such as quoted prices for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the asset or liability.

Level 3 – inputs which include unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the underlying assets or liability. Level 3 assets and liabilities include those whose fair value measurements are determined using pricing models, discounted cash flow methodologies or similar valuation techniques, as well as significant management judgment or estimation.

Financial assets and liabilities are classified, in their entirety, based on the lowest level of input that is significant to the fair value measurement. Our assessment of the significance of a particular input, to the fair value measurement requires judgment, and may affect the valuation of assets and liabilities and their placement within the fair value hierarchy levels.

The fair value of the Company’s external debt under its Credit Agreement approximates its carrying value because the terms and conditions approximate those of current market debt available to the Company. Due to the floating interest rate the debt is classified as Level 2 of the fair value hierarchy. The external debt was estimated based on the current rates offered to the Company for debt with the same remaining maturities. The fair value of the Company’s Credit Agreement was $55.3 million and $30.0 million as of December 31, 2020 and 2021, respectively.

The fair value of cash approximates its carrying value (Level 1 of the fair value hierarchy).

Goodwill and intangible assets

Goodwill represents the excess purchase price over the estimated fair value of net assets acquired in a business combination. Goodwill is measured at cost and is not amortized. Intangible assets acquired, either individually or with a group of assets, are initially recognized and measured at fair value. The Company uses third-party specialists to assist management to determine fair values and estimated useful lives for intangible assets acquired in business combinations. Intangible assets with finite useful lives are amortized on a straight-line basis over their estimated useful lives of between 3 and 18 years. The Company has no intangible assets with indefinite lives.

In accordance with ASC 350, *Goodwill and Other*, the Company assesses goodwill for impairment at least annually and whenever events or circumstances that would more likely than not, reduce the fair value below its carrying value. The Company tested goodwill for impairment at December 31. The Company did not recognize an impairment loss of goodwill for the years ended December 31, 2019, 2020 and 2021.

Annual impairment testing is completed at the reporting unit level. Management has concluded the Company operates as one reporting unit and one operating segment for annual impairment testing.

In completing its impairment evaluations, the Company first assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill. In performing this qualitative assessment, the Company assesses relevant events and changes in circumstances, including industry and market conditions, observable earnings before interest, taxes, depreciation and amortization ("EBITDA") multiples for peer companies, operating results, business plans, and entity-specific events that would affect the fair value or the carrying amount of a reporting unit. If it is more likely than not that the fair value of a reporting unit is less than its carrying value, the Company determines the fair value of the reporting unit and compares the fair value to its carrying value. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is not considered impaired and no further steps are required.

Impairment of long-lived assets

The Company evaluates its long-lived assets, including property and equipment, software, right of use assets, and definite-lived intangible assets for impairment by completing a quarterly qualitative assessment and whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. An impairment loss is recognized when the net book value of such assets exceeds the estimated future undiscounted cash flows attributable to the assets or asset group. If impairment is indicated, the asset is written down to its estimated fair value. The Company did not recognize any material impairment losses of long-lived assets for the years ended December 31, 2019, 2020 and 2021.

Leases

The Company has both cancelable and noncancelable operating leases for office space, vehicles, and office equipment. The Company records leases in accordance with ASC 842, *Leases*, ("ASC 842"). The Company records a right-of-use asset and lease liability on its consolidated balance sheet for all leases that qualify. The operating lease liability represents the present value of the future minimum lease payments over the lease term using the Company's incremental borrowing rate at the lease commencement date. The right-of-use asset reflects adjustments for the derecognition of deferred rent and prepaid rent. Leases with an initial term of 12 months or less are not recorded on the Company's consolidated balance sheet, and are expensed on a straight-line basis over the lease term. The Company does not include any renewal periods in the lease term for its leases as sufficient economic factors do not exist that would compel it to continue to use the underlying asset beyond the initial non-cancelable term. The Company has elected to combine the lease and non-lease components into a single lease component for all of its leases. See Note 17 – Leases for further details.

Product warranties

The Company provides a standard warranty on its products, with the term depending on the product, and records a liability for the estimated future costs associated with potential warranty claims. Provisions for warranty claims are recorded at the time products are sold based on historical experience factors including product failure rates, material usage, and service delivery cost incurred in correcting product failures. These provisions are reviewed and adjusted by management periodically to reflect actual and anticipated experience. The warranty costs are reflected in the Company's consolidated statements of operations within cost of revenues. In certain circumstances, the Company may have recourse from its contract manufacturers for replacement cost of defective products, which it also factors into its warranty liability assessment.

Income taxes

The Company accounts for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in its financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statement carrying amount and the tax basis of assets and liabilities using enacted income tax rates in effect for the year in which the differences are expected to be recovered or settled. The effect of a change in income tax rates on deferred tax assets and liabilities is recognized in the income tax provision in the period that includes the enactment date.

In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized and adjusts the valuation allowances accordingly. In making such a determination, the Company considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations.

In general, it is the practice and intention of the Company to reinvest the earnings of its subsidiaries in those operations. As of December 31, 2019, 2020 and 2021, the Company had not made a provision for withholding taxes on approximately $8.5 million, $13.8 million and $27.2 million, respectively, of undistributed earnings at each period-end that are indefinitely reinvested. Generally, such amounts become subject to taxation upon the remittance of dividends and under certain other circumstances. It is not practicable to estimate the amount of deferred tax liability to the undistributed earnings in these subsidiaries.

The Company may be subject to income tax audits in all of the jurisdictions in which it operates and, as a result, must also assess exposures to any potential issues arising from current or future audits of current and prior years' tax returns. Accordingly, the Company must assess such potential exposures and, where necessary, provide for any expected loss. The Company would recognize the benefit of a tax position if it is more likely than not to be sustained. Recognized tax positions are measured at the largest amount more likely than not to be realized upon settlement. To the extent that the Company establishes a liability, its income tax expense would be increased. If the Company ultimately determines that payment of these amounts is unnecessary, it would reverse the liability and recognize an income tax benefit during the period in which new information becomes available indicating that the liability is no longer necessary. The Company would record an additional income tax expense in the period in which new information becomes available indicating that the income tax liability is greater than its original estimate. The Company did not record such an adjustment for the years ended December 31, 2019, 2020 or 2021.

Share-based compensation

The Company accounts for share-based compensation in accordance with the guidance in ASC 718, *Share-based Payments*, by measuring and recognizing compensation expense for all share-based payments based on estimated grant date fair values for equity settled awards and period-end fair values for cash settled awards. Employees were granted both equity-settled and cash-settled awards under the Vector Cambium Holdings (Cayman), L.P. limited partnership agreement ('VCH LPA') that included both time-based and performance-based equity awards and were subject to the achievement of varying participation thresholds and contingent conditions prior to being eligible to participate in distributions from VCH L.P.

Prior to the IPO, the Company effected a Recapitalization, which exchanged the vested share-based compensation awards held by its employees for shares and unvested share-based compensation awards for restricted shares or restricted share units issued by the Company, on a value-for-value basis. After completion of the Recapitalization and the IPO, the Company is no longer party to nor subject to any obligations under the VCH LPA. As a result of the Recapitalization and the completion of the Company's IPO, the contingent conditions had been met on some of the share-based compensation awards and the Company recorded one-time share-based compensation of $15.4 million related to these awards during the year ended December 31, 2019.

Following the IPO, awards are granted under the 2019 Share Incentive Plan. The 2019 Share Incentive Plan provides for the grant of incentive share options, nonqualified share options, share appreciation rights, restricted share awards, restricted share units, or other share-based awards and performance awards. Effective upon pricing of the IPO at $12.00 per share, the Company issued an aggregate 2,172,000 share options and restricted share units to employees and directors.

In June 2019, the Company's Board of Directors adopted, and its shareholders approved, the Employee Share Purchase Plan ("ESPP"). Under the ESPP, the purchase price of the Company's shares is 85% of the lower of the fair market value of the shares on the first trading date of each offering period or on the purchase date. The first offering period or purchase period under the ESPP began on January 1, 2021. For 2021, the Company issued 81,462 shares under the ESPP.

Contingencies

In accordance with ASC 450, *Contingencies*, the Company periodically evaluates all pending or threatened contingencies and any commitments, if any, that are reasonably likely to have a material adverse effect on its results of operations, financial position or cash flows. Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

Foreign currency translation

The Company records any gain and loss associated with foreign currencies in accordance with ASC 830, *Foreign Currency Matters*. The reporting currency of the Company is the U.S. dollar and the functional currency for each operating subsidiary is the local currency of the operating subsidiary other than for Cambium Networks, Ltd. (UK) for which the functional currency is the U.S. dollar. Local currency denominated monetary assets and liabilities are translated at exchange rates in effect at the balance sheet date, and revenues, cost of revenues and expenses are translated at the average exchange rate in effect during the applicable period. The Company recognizes foreign exchange gains and losses in other expense on its consolidated statements of operations and accumulated other comprehensive income (loss) on its consolidated balance sheets.

Research and development costs

Research and development expenses consists primarily of salary and benefit expenses for employees and contractors engaged in research, design and development activities, and costs for prototypes, facilities and travel costs. The Company also incurs research and development costs associated with the development of software for both internal use and to be marketed externally. Research and development costs, other than those associated with the development of software that meet the criteria for capitalization, are expensed as incurred.

Recently adopted accounting pronouncements

In December 2019, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2019-12, *Simplifying the Accounting for Income Taxes*, as part of its Simplification Initiative to reduce the cost and complexity in accounting for income taxes. ASU 2019-12 removed certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period, and the recognition of deferred tax liabilities for outside basis differences. ASU 2019-12 also amended other aspects of the guidance to help simplify and promote consistent application of GAAP. The guidance is effective for interim and annual period beginning after December 15, 2020, with early adoption permitted. The Company adopted ASU 2019-12 on January 1, 2021, and the adoption did not have a material impact on the consolidated financial statements.

Note 2. Business Combinations

In August 2019, the Company completed the acquisition of select assets and assumed select liabilities of the Xirrus Wi-Fi products and cloud services business from Riverbed Technology, Inc. for a total purchase price of $5.0 million. The Company paid $2.0 million upon closing and through February 2020, paid the entire additional $3.0 million contingent consideration that was subject to attaining certain booking targets related to sales of the Xirrus products, which targets were met by December 31, 2019. The Company finalized the purchase accounting for the acquisition in the quarter ended June 30, 2020. The results from this acquisition have been included in the Company’s consolidated financial statements since the closing of the acquisition.

Note 3. Balance sheet components

Receivables, net

The Company's accounts receivable arise from sales on credit to customers. The Company establishes an estimate for credit losses to present the net amount of accounts receivable expected to be collected. The estimate is determined by using the loss-rate method, which requires an estimation of loss rates based upon historical loss experience adjusted for factors that are relevant to determining the expected collectability of accounts receivables. Some of these factors include macroeconomic conditions that correlate with historical loss experience, delinquency trends, aging behavior of receivables and credit and liquidity indicators for individual customers.

The components of accounts receivable, net are as follows (in thousands):

	December 31, 2020	December 31, 2021
Trade accounts receivable	$ 57,657	$ 69,471
Other receivables	1,376	985
Total receivables	59,033	70,456
Less: Estimate for credit losses	(919)	(683)
Receivables, net	$ 58,114	$ 69,773

The estimate for credit losses activity was as follows (in thousands):

	Year ended December 31, 2020	Year ended December 31, 2021
Beginning balance	$ 580	$ 919
Increase, charged to expense	316	172
Recoveries	(101)	(163)
Provision for late fee charges	191	—
Amounts written-off	(67)	(245)
Ending balance	$ 919	$ 683

Inventories, net

Inventories, net consisted of the following (in thousands):

	December 31, 2020	December 31, 2021
Finished goods	$ 35,241	$ 31,991
Raw materials	4,576	7,353
Gross inventory	39,817	39,344
Less: Excess and obsolete provision	(5,855)	(5,567)
Inventories, net	$ 33,962	$ 33,777

The following table reflects the activity in the Company's inventory excess and obsolete provision (in thousands):

	Year ended December 31, 2020	Year ended December 31, 2021
Beginning balance	$ 4,959	$ 5,855
Inventory written off	(1,577)	(468)
Increase in excess and obsolete provision	2,473	180
Ending balance	$ 5,855	$ 5,567

Accrued liabilities

Accrued liabilities consisted of the following (in thousands):

	December 31, 2020	December 31, 2021
Accrued goods and services	$ 7,937	$ 12,278
Accrued inventory purchases	4,830	2,218
Accrued customer rebates	7,380	7,355
Other	13	97
Accrued liabilities	$ 20,160	$ 21,948

Accrued warranty

Provision for warranty claims is primarily related to our hardware products and recorded at the time products are sold. The change to accrued warranty was as follows (in thousands):

	Year ended December 31, 2020	Year ended December 31, 2021
Beginning balance	$ 706	$ 1,714
Warranties assumed due to acquisition	1,174	—
Fulfillment of assumed acquisition warranty	(482)	(216)
Provision increase, net	316	233
Ending balance	$ 1,714	$ 1,731

At December 31, 2020, $1.1 million is included in Other current liabilities and $0.6 million is included in Other noncurrent liabilities on the Company's consolidated balance sheet. At December 31, 2021, $1.2 million is included in Other current liabilities and $0.5 million is included in Other noncurrent liabilities on the Company's consolidated balance sheet.

Note 4. Property and equipment

Property and equipment, net consisted of the following (in thousands):

	Useful Life	December 31, 2020	December 31, 2021
Equipment and tooling	3 to 5 years	$ 24,367	$ 29,621
Computer equipment	3 to 5 years	3,137	3,835
Furniture and fixtures	10 years	745	844
Leasehold improvements	2 to 3 years	282	457
Total cost		28,531	34,757
Less: Accumulated depreciation		(20,996)	(24,267)
Property and equipment, net		$ 7,535	$ 10,490

Total depreciation expense was $3.6 million, $3.7 million and $3.4 million for the years ended December 31, 2019, 2020 and 2021, respectively.

Note 5. Software

Software consisted of the following (in thousands):

	Useful Life	December 31, 2020 Gross carrying amount	Accumulated amortization	Net balance	December 31, 2021 Gross carrying amount	Accumulated amortization	Net balance
Acquired and Software for internal use	3 to 7 years	$ 15,680	$ (14,214)	$ 1,466	$ 15,855	$ (14,907)	$ 948
Software marketed for external sale	3 years	3,411	(1,439)	1,972	7,164	(2,245)	4,919
Total		$ 19,091	$ (15,653)	$ 3,438	$ 23,019	$ (17,152)	$ 5,867

Amortization of acquired and internal use software is computed using the straight-line method over an estimated useful life of generally three to seven years. Amortization expense recognized on acquired and internal use software is reflected in depreciation and amortization in the consolidated statements of operations. Amortization expense was $0.7 million, $0.8 million and $0.7 million for the years ended December 31, 2019, 2020 and 2021, respectively.

Amortization expense recognized on software to be sold or marketed externally was $0.5 million, $0.6 million and $0.8 million for the years ended December 31, 2019, 2020 and 2021, respectively, and is included in cost of revenues on the consolidated statements of operations.

Based on capitalized software assets at December 31, 2021, estimated amortization expense in future fiscal years is as follows (in thousands):

Year ending December 31,	Acquired and internal use software	Software marketed for external use	Total
2022	474	1,571	2,045
2023	218	1,755	1,973
2024	114	1,274	1,388
2025	68	319	387
2026	68	—	68
Thereafter	6	—	6
Total amortization	$ 948	$ 4,919	$ 5,867

Note 6. Goodwill and Intangible Assets

When the Company acquired the trade assets of Motorola Solutions, Inc.'s wireless point-to-point and point-to-multi-point businesses, the transaction generated goodwill and certain intangible assets. The goodwill associated with this transaction was recorded by Cambium Networks Corporation and allocated to Cambium Networks, Ltd. and Cambium Networks, Inc. using a revenue and asset allocation method. Although goodwill has been allocated to two operating subsidiaries, the Company operates as one operating segment and one reporting unit and therefore, goodwill is reported, and impairment testing performed, at the Cambium Networks Corporation consolidated level.

The Company finalized its purchase accounting for inventory and warranty on the Xirrus acquisition in the quarter ended June 30, 2020, which resulted in a $1.3 million adjustment to goodwill.

The change in the carrying amount of goodwill for the years ended December 31, 2020 and 2021 was as follows (in thousands):

	December 31, 2020	December 31, 2021
Beginning balance	$ 8,552	$ 9,842
Acquisition adjustments	1,290	—
Ending balance	$ 9,842	$ 9,842

The Company tests goodwill and intangible assets for impairment annually on December 31 and more frequently if impairment indicators exist. For 2020 and 2021, the Company performed qualitative assessments of significant events and circumstances such as a reporting unit's historical and current results, assumptions regarding future performance, strategic initiatives and overall economic factors, including the impact of the current global outbreak of COVID-19 and macro-economic developments, to determine the existence of potential indicators of impairment and assess if it is more likely than not that the fair value of the reporting unit or intangible asset is less than their carrying value. If indicators of impairment are identified, a quantitative impairment test is performed.

The qualitative assessments for 2020 and 2021 did not indicate the existence of impairment indicators. Based on the operating results of the 2020 and 2021 and other considerations, the Company believes that it is more likely than not that the enterprise value for its one reporting unit and the fair value of intangibles is still greater than their carrying values. Accordingly, there was no goodwill impairment to record for either period. In addition, there were no triggering events or changes in circumstances during 2020 and 2021 that would have required an interim impairment assessment other than at the annual test date.

The useful life, gross carrying value, accumulated amortization, and net balance for each major class of definite-lived intangible assets at each balance sheet date were as follows (in thousands):

		December 31, 2020			December 31, 2021		
	Useful Life	Gross carrying amount	Accumulated amortization	Net balance	Gross carrying amount	Accumulated amortization	Net balance
Unpatented technology	3 - 7 years	$ 14,660	$ (14,375)	$ 285	$ 14,660	$ (14,555)	$ 105
Customer relationships	5 - 18 years	19,300	(7,128)	12,172	19,300	(8,628)	10,672
Patents	7 years	11,300	(11,300)	—	11,300	(11,300)	—
Trademarks	10 years	5,270	(4,832)	438	5,270	(5,270)	—
Total		$ 50,530	$ (37,635)	$ 12,895	$ 50,530	$ (39,753)	$ 10,777

Intangible assets are amortized over their expected useful life and none are expected to have a significant residual value at the end of their useful life. Intangible assets amortization expense was $1.6 million, $2.2 million and $2.1 million for the years ended December 31, 2019, 2020 and 2021, respectively.

Based on capitalized intangible assets as of December 31, 2021, estimated amortization expense amounts in future fiscal years are as follows (in thousands):

Year ending December 31,	Amortization
2022	1,603
2023	1,498
2024	1,498
2025	1,498
2026	1,498
Thereafter	3,182
Total amortization	$ 10,777

Note 7. Debt

As of December 31, 2021, the Company had $30.0 million outstanding under its current term loan facility with Bank of American and $0.0 million in borrowings under its revolving credit facility. The Company has available $45.0 million under its revolving credit facility with Bank of America.

As of December 31, 2020, the Company had $55.3 million outstanding under its prior term loan facility with Silicon Valley Bank and $0.0 million in borrowings under its revolving credit facility with Silicon Valley Bank.

The following table reflects the current and noncurrent portions of the external debt facilities at December 31, 2020 and December 31, 2021 (in thousands):

	December 31, 2020	December 31, 2021
Term loan facility	$ 55,250	$ 30,000
Less debt issuance costs	(1,092)	(546)
Total debt	54,158	29,454
Less current portion of term facility	(29,747)	(2,625)
Current portion of debt issuance costs	546	136
Total long-term external debt	$ 24,957	$ 26,965

At December 31, 2020, the current portion of term facility included $19.7 million related to the required repayment of principal in accordance with the excess cash flow provision of the term loan facility with Silicon Valley Bank based on the Company's calculation of excess cash flow at December 31, 2020, which was paid in May 2021.

Secured credit agreements

On November 17, 2021 ("Closing Date"), Cambium Networks entered into a credit agreement (the “BofA Credit Agreement") among Cambium Networks, Ltd. as the borrower (the “Borrower”), Cambium Networks Corporation as Holdings and a Guarantor (“Holdings”), Cambium (US), L.L.C., as Intermediate Holdings and a Guarantor, certain other subsidiaries of Holdings party thereto as Guarantors (with the Borrower and each Guarantor being, individually, a “Loan Party” and collectively, the “Loan Parties”), Bank of America, N.A., as Administrative Agent (in such capacity, the “Administrative Agent”), a Lender, Swingline Lender and an L/C Issuer, the other Lenders party thereto from time to time and Bank of America, N.A. as Sole Lead Arranger and Sole Bookrunner. Capitalized terms used but not otherwise defined herein shall have the meaning as assigned to such terms in the BofA Credit Agreement filed as Exhibit 10.34.

The BofA Credit Agreement provides for the provision of loans and other financial accommodations to the Borrower in an aggregate principal amount of up to $75.0 million in the form of (i) a five-year term loan facility (the “Term Facility”) in the amount of $30.0 million, all of which was drawn on the Closing Date to repay the outstanding balance under the existing credit facility with Silicon Valley Bank and (ii) a five-year revolving credit facility (the “Revolving Facility” and together with the Term Facility, the “Credit Facilities”) in the amount of $45.0 million, including a $5.0 million sublimit for the issuance of letters of credit and a $5.0 million sublimit for Swingline Loans. The Credit Facilities were made available (a) to repay existing outstanding indebtedness under the existing credit facilities with Silicon Valley Bank, (b) to pay fees and expenses incurred in connection with the transactions contemplated by the BofA Credit Agreement and (c) for working capital requirements and other general corporate purposes of the Loan Parties and their subsidiaries.

The Term Facility and the Revolving Facility terminate on the date that is five (5) years after the Closing Date (the “Maturity Date”).

The Borrower has the option to borrow Term Loans under the Term Facility in the form of either Base Rate Loans or Eurodollar Rate Loans, as defined in the BofA Credit Agreement. The Term Facility borrowed on the Closing Date was borrowed as a Eurodollar Rate Loan with a six (6) month Interest Period. The outstanding principal amounts of the Term Facility bear interest for the applicable Interest Period at a rate per annum equal to the Eurodollar Rate (the rate equal to the London Interbank Offered Rate) for such Interest Period *plus* the Applicable Rate (which is 2.00% per annum for the first full fiscal quarter following the Closing Date and thereafter ranges from 1.75% to 2.25% per annum, depending on Holdings’ Consolidated Leverage Ratio). If Holdings’ Consolidated Leverage Ratio is less than 1.00:1.00, the Applicable Rate for the Term Facility will be 1.75%. If Holdings’ Consolidated Leverage Ratio is greater than or equal to 1.00:1.00 but less than 2.00:1.00, the Applicable Rate for the Term Facility will be 2.00%. If Holdings’ Consolidated Leverage Ratio is greater than or equal to 2.00:1.00, the Applicable Rate for the Term Facility will be 2.25%.

The Borrower has the option to borrow Revolving Loans under the Revolving Facility in the form of either Base Rate Loans or Eurodollar Rate Loans. The outstanding principal amounts of Eurodollar Rate Loans borrowed under the Revolving Facility bear interest at the same rates as described above for the Eurodollar Rate Loan under the Term Facility.

The outstanding principal amounts of the Credit Facilities that are borrowed as (or converted to) Base Rate Loans under the BofA Credit Agreement bear interest from the applicable Borrowing date at a rate per annum equal to the Base Rate (a fluctuating rate of interest per annum equal to the highest of (a) the Federal Funds Rate *plus* 0.50%, (b) the rate of interest in effect for such day as publicly announced from time to time by Bank of America as its "prime rate," and (c) the one (1) month Eurodollar Rate *plus* 1.75%) *plus* the Applicable Rate (which is 0.25% per annum for the first full fiscal quarter following the Closing Date and thereafter ranges from 0.00% to 0.50% per annum, depending on Holdings' Consolidated Leverage Ratio). If Holdings' Consolidated Leverage Ratio is less than 1.00:1.00, the Applicable Rate for Base Rate Loans under the Revolving Facility will be 0.00%. If Holdings' Consolidated Leverage Ratio is greater than or equal to 1.00:1.00 but less than 2.00:1.00, the Applicable Rate for Base Rate Loans under the Revolving Facility will be 0.25%. If Holdings' Consolidated Leverage Ratio is greater than or equal to 2.00:1.00, the Applicable Rate for Base Rate Loans under the Revolving Facility will be 0.50%. The Borrower will pay an undrawn commitment fee ranging from 0.20% to 0.25% (depending on Holdings' Consolidated Leverage Ratio) on the unused portion of the Revolving Facility.

Obligations under the BofA Credit Agreement are guaranteed by Holdings and its material Subsidiaries pursuant to the BofA Credit Agreement. To secure the obligations of the Loan Parties under the Credit Facilities, each Loan Party has entered into a Security and Pledge Agreement (the "Security Agreement"), dated as of November 17, 2021, pursuant to which the applicable Grantors granted to the Administrative Agent, for the benefit of the Lenders and the other Secured Parties, a valid and perfected first priority lien and security interest, subject to customary exceptions, in (i) equity interests of the Domestic Loan Parties, and (ii) substantially all tangible and intangible personal property of the Domestic Loan Parties (unless and until certain Events of Default have occurred and are continuing, at which time the Administrative Agent may require a Foreign Loan Party to provide a valid and perfected security interest in substantially all of its tangible and intangible assets subject to certain customary exceptions), and all proceeds and products of the property and assets described above.

In addition to the liens granted under the Security Agreement, Cambium (US), L.L.C. entered into a Share Charge, as chargor (the "Chargor") dated November 17, 2021 (the "Share Charge") with Bank of America, as Collateral Agent for itself and for the Secured Parties (the "Collateral Agent"), pursuant to which the Chargor pledged to the Collateral Agent the shares of the Borrower.

The BofA Credit Agreement contains certain representations and warranties, certain affirmative covenants, certain negative covenants, certain financial covenants and certain conditions that are customarily required for similar financings. These covenants include, among others:

- A restriction on creating or assuming certain liens;
- A restriction on creating, incurring or assuming additional indebtedness, subject to specified permitted debt;
- A restriction on making or holding certain investments, subject to certain exceptions;
- A restriction on mergers, liquidations, consolidations and other fundamental changes, subject to specified exceptions;
- A restriction on certain sales and other dispositions of property or assets, including sale and leaseback transactions, subject to certain conditions and exceptions;
- A restriction on payments of dividends, share repurchases and other distributions, subject to certain exceptions; and
- A restriction on entering into certain transactions with affiliates.

In addition, Holdings may not permit its consolidated leverage ratio to exceed 2.75:1.00, and must maintain a minimum consolidated fixed charge coverage ratio of not less than 1.25:1.00. Determination of compliance with the consolidated leverage ratio commenced as of December 31, 2021; the Company does not begin determining compliance with the consolidated fixed charge coverage ratio until March 31, 2022. Based on the above covenants in the BofA Agreement, the Company believes that all covenants will be met at subsequent testing dates for the next twelve months and has classified the amounts due in excess of twelve months as noncurrent. As of December 31, 2021, the Company was in compliance with its consolidated leverage ratio, which is the only covenant required to be tested as of that date.

The BofA Credit Agreement also contains customary Events of Default that include, among others, non-payment of principal, interest or fees, violations of certain covenants, inaccuracy of representations and warranties, bankruptcy and insolvency events, material judgments, cross defaults to material indebtedness and events constituting a change of control. The occurrence and continuance of an Event of Default could result in the termination of commitments under the Credit Facilities and the declaration that all outstanding loans are immediately due and payable in whole or in part.

Maturities on the external debt outstanding at December 31, 2021 under the BofA Agreement are as follows (in thousands):

Year ending December 31,		
2022		2,625
2023		2,625
2024		2,625
2025		2,625
2026		19,500
Total	$	30,000

Prior credit agreement

The Company used proceeds from the BofA Credit Agreement to repay all outstanding amounts under its existing credit agreement with Silicon Valley Bank, which also consisted of a term loan and a revolving loan.

In addition to the quarterly repayments of $2.5 million due under the credit facility with Silicon Valley Bank, such credit agreement included an annual excess cash flow provision whereby 50% of excess cash, as defined therein and was payable to the lenders as a repayment of outstanding borrowings. The calculation was based on information at December 31 of each year and due in the following year. At December 31, 2020, the excess cash flow payment computed under the provision was $19.7 million and was included in Current portion of external long-term debt, net in the Company's consolidated balance sheets.

The credit agreement with Silicon Valley bank contained customary affirmative and negative covenants, including covenants that imposed limits or restrictions on the Company. The Company was required to maintain a quarterly minimum consolidated fixed charge coverage ratio, a quarterly consolidated leverage ratio and a monthly adjusted quick ratio with limits defined in the agreement. As of December 31, 2020, the Company was in compliance with all affirmative and negative covenants under the credit facilities with Silicon Valley Bank.

Interest expense, net

Net Interest expense, including bank charges and amortization of debt issuance costs on the external debt, was $8.1 million, $5.3 million and $4.3 million for the years ended December 31, 2019, 2020 and 2021, respectively. Interest expense for the year ended December 31, 2019 included $0.5 million of additional amortization of deferred issuance costs for the write-down of deferred issuance costs related to the $20.7 million prepayment of the term loan. Interest expense for the year ended December 31, 2021 included $0.3 million of additional amortization of deferred issuance costs for the write-down of deferred issuance costs related to the $19.6 million excess cash flow payment made in May 2021 to Silicon Valley Bank. Interest expense for the year ended December 31, 2021 also includes a $0.4 million loss on early extinguishment of the Silicon Valley credit agreement, which was comprised of $384 thousand write-off of remaining deferred issuance costs and $42 thousand of debt extinguishment fees paid to Silicon Valley Bank.

Expected discontinuation of LIBOR

In July 2017, the United Kingdom's Financial Conduct Authority ("FCA"), which regulates LIBOR, announced it will no longer compel banks to submit rates for the calculation of LIBOR after 2021. In May 2021, the FCA confirmed the 1-week and 2-month US Dollar LIBOR tenors ceased on December 31, 2021, but the remaining five US Dollar tenors (overnight, 1-month, 3-month, 6-month and 12-month) will not cease until June 30, 2023. The BofA Credit Agreement matures on November 17, 2026, which is after the cessation of all tenors of the US Dollar LIBOR rate.

The Company is evaluating the potential impact of the transition from LIBOR as an interest rate benchmark to other potential alternative reference rates, including SOFR. Eurodollar loans under the BofA Credit Agreement are currently indexed to Eurodollar Rate (the rate equal to the London Interbank Offered Rate). The BofA Credit Agreement contemplates the discontinuation of LIBOR and provides that a benchmark replacement rate shall be determined by reference to other applicable rates and additionally allows the Company to switch to a Base Rate loan, as defined in the BofA Credit Agreement. The Company will continue to actively assess the related opportunities and risks involved in this transition.

Note 8. Contributed capital

On June 28, 2019, in connection with the Recapitalization, the unreturned capital and accumulated yield of $49.2 million payable to holders of Class A Units under the Vector Cambium Holdings (Cayman), Limited Partnership Agreement ("VCH LPA") was settled in the form of additional shares in the Company. The Company issued shares to VCH, L.P. on a value-for-value basis based on the $12.00 per share offering price. The Recapitalization was recorded as a non-cash transaction which resulted in the transfer of equity ownership from capital contribution to additional paid in capital. After completion of the Recapitalization, the Company is neither party to nor subject to any obligations under the VCH LPA.

Note 9. Employee benefit plans

The Company's employee benefit plans currently consist of a defined contribution plan in the United States and a separate defined contribution plan in the UK. The Company does not offer any other postretirement benefit plans, such as retiree medical and dental benefits or deferred compensation agreements to its employees or officers.

U.S. plan

U.S. regular, full-time employees are eligible to participate in the Cambium Networks, Inc. 401(k) Plan, which is a qualified defined contribution plan under section 401(k) of the Internal Revenue Service Code. Under the Cambium Networks, Inc. 401(k) Plan, the Company contributes a dollar-for-dollar match of the first 4% an employee contributes to the plan. Employees are eligible to participate on the first day of the month following their date of hire and begin receiving company contributions three-months after they become eligible to participate in the plan. Company matching contributions are made each pay period, but the funds do not vest until the employee's second anniversary of employment with the Company. Employees are always fully vested in their own contributions. All contributions, including the Company match, are made in cash and invested in accordance with the participants' investment elections. Contributions made by the Company under the Cambium Networks, Inc. 401(k) Plan were $1.1 million, $1.0 million and $1.2 million for the years ended December 31, 2019, 2020 and 2021, respectively.

UK plan

Regular, full-time UK employees are eligible to participate in the Cambium Networks Ltd. Stakeholder Pension Scheme, which is a qualified defined contribution plan. Employees are eligible to participate on the first of the month following receipt of their enrollment form, and eligible employees are automatically enrolled in the plan at a default employee contribution rate of 3% and a company contribution rate of 5% of the employee's basic salary. The Company contribution rate increases by 1% for each additional 1% that the employee contributes up to a maximum of 7%. Company matching contributions vest immediately and employees are always vested in their own contributions. All contributions, including the Company match, are made in cash and deposited in the participant's account each pay period. The total contributed by the Company under this plan was $0.4 million, $0.4 million and $0.4 million for the years ended December 31, 2019, 2020 and 2021, respectively.

Note 10. Other expense, net

Other expense, net were $0.5 million, $0.5 million and $0.2 million for the years ended December 31, 2019, 2020 and 2021, respectively, and represents foreign exchange losses.

Note 11. Share-based compensation

2011 Management incentive compensation plan

Prior to its IPO, the Company's management incentive compensation represented management incentive units ("MIUs") in its sole shareholder, VCH, L.P.

Just prior to the IPO, the Company effected the Recapitalization, which comprised an increase in the authorized and outstanding shares held by VCH, L.P., and the exchange of the vested share-based compensation awards held by its employees for its ordinary shares and unvested share-based compensation awards for restricted shares or restricted share units issued by the Company, in each case, on a value-for-value basis. After completion of the Recapitalization and the IPO, the Company is no longer party to nor subject to any obligations under the VCH LPA. As a result of the Recapitalization and the completion of the Company's IPO, the contingent conditions had been met on some of the equity-settled and cash-settled awards and the Company recorded one time share-based compensation expense of $15.4 million related to these awards in the year ended December 31, 2019.

2019 Share incentive plan

In June 2019, the Company's Board of Directors adopted, and its shareholders approved, the 2019 Share Incentive Plan ("2019 Plan"). The 2019 Plan provides for the grant of incentive share options, nonqualified share options, share appreciation rights, restricted share awards ("RSAs"), restricted share units ("RSUs"), other share-based awards and performance awards. The number of shares that were reserved under the 2019 Plan was 3,400,000, in addition to the 240,037 RSAs and RSUs the Company granted in substitution for unvested Class B Units or phantom units in VCH L.P. in connection with the Company's Recapitalization and IPO based on a price of $12.00 ("Recapitalization Awards"). The share reserve under the 2019 Plan will be automatically increased on the first day of each fiscal year, beginning with the fiscal year ending December 31, 2020 and will continue until, and including, the fiscal year ending December 31, 2029. The number of shares added annually will be equal to the lowest of 1,320,000 shares, 5% of the number of the Company's shares outstanding on the first day of such fiscal year, or an amount determined by the Board of Directors. On March 24, 2020, the Company registered 1,283,649 additional shares and on March 1, 2021 the Company registered 1,301,726 additional shares that may be issued under the 2019 Plan.

The Company's employees, officers, directors, consultants, and advisors are eligible to receive awards under the 2019 Plan. Incentive share options, however, may only be granted to its employees. Participants in the 2019 Plan will also consist of persons to whom Recapitalization Awards were granted.

The following table summarizes changes in the number of shares available for grant under the Company's equity incentive plans during the year ended December 31, 2021:

	Number of shares
Available for grant at December 31, 2020	832,134
Added to 2019 Share Incentive Plan	1,301,726
RSUs granted	(267,175)
Options granted	(116,035)
Shares withheld in settlement of taxes and/or exercise price	64,761
Forfeitures	37,829
Available for grant at December 31, 2021	1,853,240

Share-based compensation

The following table shows total share-based compensation expense for the years ended December 31, 2019, 2020 and 2021 (in thousands):

	Year ended December 31,		
	2019	2020	2021
Cost of revenues	$ 211	$ 67	$ 152
Research and development	5,363	1,599	3,044
Sales and marketing	4,185	980	1,935
General and administrative	7,937	790	2,586
Total share-based compensation expense	$ 17,696	$ 3,436	$ 7,717

As of December 31, 2021, the Company estimates the pre-tax unrecognized compensation expense of $17.9 million related to all unvested share-based awards, including share options, restricted share units and restricted share awards will be recognized through the fourth quarter of 2025. The Company expects to satisfy the exercise of share options and future distributions of shares for restricted share units and restricted share awards by issuing new ordinary shares which have been reserved under the 2019 Plan.

In connection with the Recapitalization, phantom units, which were previously accounted for as liability-settled awards, were modified to equity-settled awards. Due to a performance condition associated with the phantom units, a liability was not recognized in the Company's consolidated financial statements, but was disclosed as liability-settled awards. For the year ended December 31, 2019, the Company recognized $2.2 million in share-based compensation expense associated with the vesting of phantom unit awards upon Recapitalization.

The Company uses the Black-Scholes option pricing model to estimate the fair value of share options. The Company utilized a forfeiture rate of 8.2% during the year ended December 31, 2021 for estimating the forfeitures of share options and restricted share units granted.

Share options

The following is a summary of option activity for the Company's share incentive plans for year ended December 31, 2021:

	Options	Weighted average exercise price	Weighted Average remaining contractual term (years)	Aggregate intrinsic value
Outstanding at December 31, 2020	3,164,185	$ 11.24	8.8	$ 43,793,890
Options granted	116,035	$ 42.52	—	$ —
Options exercised	(454,354)	$ 10.58	—	$ —
Options forfeited	(27,874)	$ 11.24	—	$ —
Outstanding at December 31, 2021	2,797,992	$ 12.64	7.9	$ 38,295,799
Options exercisable at December 31, 2021	1,288,277	$ 11.27	7.8	$ 18,500,328
Options vested and expected to vest at December 31, 2021	2,742,060	$ 12.63	7.9	$ 37,502,738

Share options typically have a contractual term of ten years from grant date.

The intrinsic value for share options outstanding and exercisable is defined as the difference between the market value of the Company's ordinary shares as of the end of the period and the grant price. At December 31, 2019, 2020 and 2021, the aggregate intrinsic value of options exercisable under the Company's share incentive plans was $0.0 million, $12.7 million and $18.5 million, respectively, as determined as of the date of grant. No share options were exercised prior to 2020. The Company had 138,878 and 454,354 options exercised during the years ended December 31, 2020 and 2021, respectively. The cash received from the share options exercised in 2020 and 2021 was $1.6 million and $4.8 million, respectively.

At December 31, 2021, there was $8.6 million in unrecognized pre-tax share-based compensation expense, net of estimated forfeitures, related to unvested share option awards. The unrecognized share-based compensation expense is expected to be recognized over a weighted-average period of 2.3 years.

The Company estimates the fair value of share options using the Black-Scholes option pricing model. The fair value of share options is being amortized on a straight-line basis over the requisite service period of the awards. The fair value of share options is estimated using the following weighted-average assumptions:

	For the years ended December 31,		
	2019	2020	2021
Expected dividend yield	—	—	—
Risk-free interest rate	1.81%	0.39%	1.14%
Weighted-average expected volatility	40.8%	50.0%	50.9%
Expected term (in years)	6.1	6.5	6.5
Weighted average grant-date fair value per share of options granted	$ 4.34	$ 7.56	$ 21.36

Restricted shares

The following is a summary of restricted shares activity for the Company's share incentive plans for the year ended December 31, 2021:

	Units		Weighted average grant date fair value
RSU and RSA balance at December 31, 2020	519,197	$	4.89
RSUs and RSAs granted	267,175	$	42.22
RSUs and RSAs vested	(229,074)	$	5.00
RSUs and RSAs forfeited	(9,955)	$	37.71
RSU and RSA balance at December 31, 2021	547,343	$	22.47
RSUs and RSAs expected to vest at December 31, 2021	547,343	$	22.47

Upon completion of the Company's Recapitalization and IPO, 240,037 RSAs and RSUs were granted to employees in substitution for unvested Class B Units or phantom units with a grant date fair value of $12.00, of which 34,111 of the RSAs and RSUs awards granted carry-forward their prior vesting terms and expiration dates and 205,926 RSAs are exercisable based upon the achievement of a market condition. During 2020 and 2021, 506,500 and 267,175 RSUs were granted under the 2019 Plan, respectively. In December 2020, the market condition on the 205,926 RSAs was met and these shares vested. The Company withheld 5,074 and 64,761 shares to pay the employees' portion of the minimum payroll withholding taxes on the RSUs and RSAs that vested in 2020 and 2021, respectively.

At December 31, 2021, there was $9.3 million in unrecognized pre-tax compensation expense, net of estimated forfeitures, related to unvested share awards. The unrecognized compensation expense is expected to be recognized over a weighted average period of 3.1 years.

Employee share purchase plan

In June 2019, the Company's Board of Directors adopted, and its shareholders approved, the Employee Share Purchase Plan ("ESPP"). The ESPP was effective on June 25, 2019 and the offering period or purchase period under the ESPP began on January 1, 2021. A total of 1,067,075 shares are available under the ESPP, which includes 550,000 shares originally available, 256,730 additional shares registered on March 24, 2020 and 260,345 additional shares registered on March 1, 2021. The number of shares that will be available for sale under the ESPP will be increased annually on the first day of each fiscal year beginning in 2020, and will be equal to the lowest of: 275,000 shares; 1% of the outstanding shares as of the last day of the immediately preceding fiscal year, or such other amount as the administrator may determine. The purchase price of the shares will be 85% of the lower of the fair market value of our shares on the first trading day of each offering period or on the purchase date.

For the year ended December 31, 2021, the Company recognized $0.7 million of share-based compensation expense related to the ESPP. There were 39,061 and 42,401 shares issued under the ESPP during the six-month offering periods that ended on June 30, 2021 and December 31, 2021, respectively.

Note 12. Share capital – shares

The following table reflects the share capital activity:

	Number of shares		Value (in thousands)
Balance at December 31, 2019	25,672,983	$	3
Issuance of vested shares	234,191		—
Share options exercised	138,878		—
Shares withheld for net settlement of shares issued	(11,526)		—
Balance at December 31, 2020	26,034,526	$	3
Issuance of ordinary shares under employee share purchase plan	81,462		—
Issuance of vested shares	229,594		—
Share options exercised	454,354		—
Shares withheld for net settlement of shares issued	(64,761)		—
Balance at December 31, 2021	26,735,175	$	3

As of December 31, 2021, no dividends have been declared or paid.

Note 13. Earnings per share

Basic net earnings (loss) per share is computed by dividing net income (loss) by the weighted-average number of shares outstanding during the period. Diluted net earnings per share is computed by giving effect to all potentially dilutive ordinary share equivalents outstanding for the period. For purposes of this calculation, share options, RSUs, and RSAs are considered to be ordinary share equivalents but are excluded from the calculation of diluted earnings (loss) per share when including them would have an anti-dilutive effect. The following table sets forth the computation of basic and diluted net earnings (loss) per share (in thousands, except for share and per share data):

	Year ended December 31,		
	2019	2020	2021
Numerator:			
Net (loss) income	$ (17,601)	$ 18,575	$ 37,421
Denominator:			
Basic weighted average shares outstanding	19,741,764	25,707,092	26,421,087
Dilutive effect of share option awards	—	228,388	1,846,998
Dilutive effect of restricted share units and restricted share awards	—	467,632	348,934
Dilutive effect of Employee share purchase plan awards	—	—	11,117
Diluted weighted average shares outstanding	19,741,764	26,403,112	28,628,136
Net (loss) earnings per share, basic	$ (0.89)	$ 0.72	$ 1.42
Net (loss) earnings per share, diluted	$ (0.89)	$ 0.70	$ 1.31

The following outstanding shares of ordinary share equivalents were excluded from the computation of diluted net loss per share for the periods presented because including them would have had an anti-dilutive effect:

	Year ended December 31,		
	2019	2020	2021
Share options	2,921	2,082	—
Restricted shares (RSUs and RSAs)	257	—	—
Total	3,178	2,082	—

On April 23, 2019, the Board of Directors approved the Subdivision whereby the authorized share capital of the Company was subdivided from 5,000,000 shares having a par value of $0.01 per share into 500,000,000 shares with a par value of $0.0001 per share. The Subdivision was effective in accordance with Cayman law on June 6, 2019. As a result of the Subdivision, issued and outstanding shares for all periods presented have been restated from 771.79 shares to 77,179 shares. Earnings per share as calculated and shown has been recalculated with the revised issued and outstanding shares.

Just prior to the IPO, the Company effected a Recapitalization. As part of the Recapitalization, the Company issued an additional 17,627,575 shares to VCH, L.P. which comprised 4,104,343 shares related to the unreturned capital and accumulated yield to the holder of Class A Units of VCH, L.P. and 13,523,232 shares related to the residual share of Cambium's value attributable to VCH, L.P.'s ownership after such return, based on an IPO price of $12.00. Using guidance in ASC 260, *Earnings per Share,* for purposes of calculating earnings per share, the 13,523,232 shares are retrospectively adjusted as if the exchange had occurred at the beginning of the first period of earnings per share information presented. The 4,104,343 shares issued related to the unreturned capital and accumulated yield and were issued in lieu of payment of cash to VCH, L.P. and therefore, the shares issued are not retrospectively reflected in shares outstanding in the prior periods for purposes of determining earnings per share.

Also as part of the Recapitalization, the Company issued 2,220,788 gross shares to its employees and service providers in exchange for the vested share-based compensation awards in VCH, L.P. held by them. For purposes of calculating earnings per share, the 2,220,788 shares are included in the weighted average number of shares outstanding used in the computation of the basic earnings per share only from the date on which the shares are issued, or June 28, 2019.

Note 14. Income taxes

For the years ended December 31, 2019, 2020 and 2021, (loss) income before income taxes includes the following components (in thousands):

	Years ended December 31,		
	2019	2020	2021
United States	$ 4,183	$ 2,648	$ 10,943
Foreign	(11,504)	15,483	20,963
Total	$ (7,321)	$ 18,131	$ 31,906

For the years ended December 31, 2019, 2020 and 2021, the provision (benefit) for income taxes consists of the following (in thousands):

	2019	2020	2021
Current:			
U.S. federal	$ 1,078	$ (198)	$ 268
State	643	(181)	(94)
Foreign	1,157	1,007	376
Current tax provision	2,878	628	550
Deferred:			
U.S. federal	$ 380	$ (664)	$ (1,662)
State	(6)	(144)	(147)
Foreign	7,028	(264)	(4,256)
Deferred tax provision (benefit)	7,402	(1,072)	(6,065)
Provision (benefit) for income taxes	$ 10,280	$ (444)	$ (5,515)

For the years ended December 31, 2019, 2020, and 2021, differences between the income tax expense computed at the statutory U.S. federal income tax rate 21% for 2019, 2020 and 2021 and the provision (benefit) for income taxes computed per the Company's consolidated statements of operation are summarized as follows (in thousands):

	Years ended December 31,		
	2019	2020	2021
Income tax (benefit) expense at federal statutory rate	$ (1,537)	$ 3,808	$ 6,700
State and local income taxes net of federal benefit	540	(295)	10
Tax rate changes	662	(925)	21
Valuation allowance changes	9,599	(1,226)	(7,902)
Foreign rate differential	369	(181)	(164)
Research and development	(1,286)	(1,455)	(811)
Share-based compensation	2,807	(171)	(3,444)
Foreign derived intangible income	(1,166)	(349)	—
Other	292	350	75
Provision (benefit) for income taxes	$ 10,280	$ (444)	$ (5,515)

Foreign rate differential represents the non-U.S. jurisdictions. The country having the greatest impact on the tax rate adjustment line shown in the above table as "foreign rate differential" for the years ended December 31, 2019, 2020 and 2021 is the UK where the statutory income tax rate was 19.0% for 2019, 2020 and 2021.

The deferred tax assets and liabilities result from differences in the timing of the recognition of certain income and expense items for tax and financial reporting purposes.

The sources of these differences for the years ended December 31, 2020 and 2021 are as follows (in thousands):

	Years ended December 31, 2020	Years ended December 31, 2021
NOL and tax credit carryforwards	$ 6,997	$ 6,886
Disallowed interest carryforwards	1,654	909
Lease liability	993	584
Property and equipment	573	27
Share-based compensation	1,163	1,130
Intangible assets	105	221
Other	250	353
Subtotal	11,735	10,110
Less: Valuation allowance	(8,373)	(471)
Net deferred tax assets	3,362	9,639
Operating lease assets	(884)	(505)
Prepaid expenses and other assets	(278)	(400)
Capitalized software development costs	(453)	(1,141)
Other	(219)	—
Subtotal	(1,834)	(2,046)
Less: Valuation allowance	—	—
Net deferred tax liabilities	(1,834)	(2,046)
Total deferred tax assets, net	$ 1,528	$ 7,593

Deferred tax assets/liabilities included in the balance sheet are:

	Years ended December 31, 2020	Years ended December 31, 2021
Deferred tax assets - non-current	$ 1,537	$ 7,604
Deferred tax liabilities - non-current (included in Other noncurrent liabilities)	9	11
Total deferred tax assets, net	$ 1,528	$ 7,593

For the years ended December 31, 2020 and 2021, the following table reflects the activity in the Company's valuation allowance on deferred tax assets (in thousands):

	Years ended December 31, 2020	Years ended December 31, 2021
Beginning balance	$ 9,599	$ 8,373
Release of valuation allowance	(1,226)	(7,902)
Ending balance	$ 8,373	$ 471

In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the period in which those temporary differences become deductible. The Company considers projected future taxable income, reversing taxable temporary differences, carryback opportunities, and tax-planning strategies in making this assessment.

Management assesses the available positive and negative evidence to estimate if sufficient future taxable income will be generated to utilize the existing deferred tax assets before they otherwise expire. Cumulative losses are objective evidence that limit the ability to consider other subjective evidence such as the Company's projections for future growth. The amount of the deferred tax asset considered realizable, however, could be adjusted if estimates of future taxable income during the carryforward period are reduced or increased or if objective negative evidence in the form of cumulative losses is no longer present and additional weight may be given to subjective evidence such as the Company's projections for growth.

As of December 31, 2020, the Company's deferred tax assets were primarily the result of UK net operating loss ("NOL"), tax credit carryforwards from the UK and U.S., and the UK corporate interest reduction. As of December 31, 2021, the Company's deferred tax assets were primarily the result of UK and U.S. net operating losses ("NOLs"), tax credit carryforwards from the UK and U.S., on share-based compensation and UK corporate interest reduction.

For the year ended December 31, 2020, the Company recorded a net decrease in its valuation allowance of $1.2 million. At year-end 2020, the Company continued to maintain a valuation allowance, on the basis of management's reassessment of the amount of its deferred tax assets (primarily comprised of NOL and interest disallowance) that were more likely than not to be realized. As a result of a review of the 3-year cumulative loss, there was sufficient objective evidence that UK cumulative losses over the recent 3-year period for the years ended December 31, 2018, 2019 and 2020 continued to provide negative and objective evidence that sufficient future income might not be generated to utilize its deferred tax assets. Consequently, the Company continued to maintain a valuation allowance against its deferred tax assets on its foreign operations of $7.7 million. Note this was a reduction from the prior year, as certain underlying deferred tax assets on which the valuation allowance was based, were utilized to offset a portion of taxable income.

For the year ended December 31, 2021, the Company recorded a net decrease in its valuation allowance of $7.7 million, related to the deferred tax assets (NOL and research and development credits) of the UK Company. In 2021, management concluded that all of the valuation allowance on the Company's UK entity's deferred tax assets was no longer needed. This was primarily due to a 12-quarter cumulative income through the first quarter of 2021 and the forecast of future taxable income. As of December 31, 2021, based on the evaluation of positive and negative evidence, the Company believes it is more likely than not that the net deferred tax assets will be realized by its UK entity. Accordingly, management has recognized a non-recurring tax benefit of $7.7 million related to the reversal of this valuation allowance.

During 2020, the Company added state research and development tax credit benefits in the state of California, which are only available to offset actual tax liabilities. The state research and development tax credits are in excess of the amount reasonably expected to be utilized over the next five years. Accordingly, the Company established an additional $0.4 million of valuation allowance during 2020, for a total of $0.7 million valuation allowance on the related deferred tax asset at December 31, 2020. During 2021, the Company's valuation allowance on the research and development tax credits for the state of California decreased $0.2 million and is $0.5 million at December 31, 2021.

The Company reviews the likelihood that it will realize the benefit of its deferred tax assets and therefore, the need for a valuation allowance on a quarterly basis. Regarding the valuation allowance remaining on the research and development tax credits for the state of California, the Company may release all or a portion of its valuation allowance, if results and other subjective evidence continue to reflect pre tax income such that the deferred tax assets become more likely than not to be realizable.

The Company has gross income tax NOL carryforwards related to its U.S. and international operations. For the year ended December 31, 2020, the NOL carryforward was approximately $28.1 million, all of which had an indefinite life. For the year ended December 31, 2021, the NOL carryforward was approximately $28.7 million, of which $25.6 million have an indefinite life and $3.1 million have a life greater than 10 years. The Company recorded a deferred tax asset of $5.3 million and $5.3 million related to NOL as of December 31, 2020 and 2021, respectively. The Company's gross NOL carryforwards expire as follows:

	Years ended December 31,	
	2020	**2021**
Unlimited carryforward	$28.1 million	$25.6 million
10+ year carryforward	—	$3.1 million

The Company has tax credit carryforwards related to research and development. For the year ended December 31, 2020, the carryforward was approximately $1.5 million, all of which has an indefinite life. For the year ended December 31, 2021, the carryforward was approximately $1.5 million, of which $0.7 million has an indefinite life and $0.8 million has a life of greater than 10 years. The Company's research and development tax credit carryforwards and their expiration are as follows:

	Years ended December 31,	
	2020	**2021**
Unlimited carryforward	$1.5 million	$0.7 million
10+ year carryforward	—	$0.8 million

The Company has gross corporate interest restriction ("CIR") disallowance carryforwards related to its UK operations. For the year ended December 31, 2020, the CIR carryforward was approximately $8.7 million, all which has an indefinite life. For the year ended December 31, 2021, the CIR carryforward was approximately $4.8 million, all of which has an indefinite life. The Company has recorded a reduction to the deferred tax asset of $3.9 million related to utilization of a portion of the CIR as of December 31, 2021. The Company's gross carryforwards expire as follows:

	Years ended December 31,	
	2020	**2021**
Unlimited carryforward	$8.7 million	$4.8 million

The Company files income tax returns in the U.S. federal jurisdiction, various state and local jurisdictions and many foreign jurisdictions. The U.S., UK, and India are the main taxing jurisdictions in which the Company operates. Open tax years subject to audit vary depending on the tax jurisdiction. In the U.S., the Company is no longer subject to U.S. federal income tax examinations by tax authorities for years before 2018. In the UK, the tax returns that are open are for the tax years 2018, 2019, and 2020. In India, the tax returns that are open are for India assessment years 2017 through 2021.

The Company believes its tax positions comply with applicable tax law and intends to vigorously defend its position. However, differing positions on certain issues could be upheld by tax authorities, which could adversely affect the Company's financial condition and results of operations. The Company does not have any unrecognized tax positions as of December 31, 2020 and 2021.

The Company recorded income tax expense of $10.3 million, income tax benefit of $(0.4) million and an income tax benefit of $(5.5) million for the years ended December 31, 2019, 2020 and 2021, with an effective tax rate of (140.4)%, (2.4)% and (17.3)%, respectively. The Company's effective tax rate of (140.4)% for the year ended December 31, 2019 differed from the U.S statutory rate of 21.0% primarily due to the recognition of a valuation allowance against its UK deferred tax assets, taxation of pre-IPO management incentive unit equity awards, tax benefits on research and development, and tax benefits on foreign derived intangible income. The Company's effective tax rate of (2.4)% for the year ended December 31, 2020 differed from the U.S. statutory rate of 21.0% primarily due to a benefit on research and development credit, a benefit on the partial release of a valuation allowance, and a tax benefit due to the increase of the tax rate applied to UK deferred tax assets. The Company's effective tax rate of (17.3)% for the year ended December 31, 2021 was different from the U.S. statutory rate of 21.0% primarily due to the removal of the valuation allowance against its UK deferred tax assets and the tax benefits arising on employee restricted share vesting and option exercises.

Note 15. Commitments and contingencies

In accordance with ASC 460, *Guarantees*, the Company recognizes the fair value for guarantee and indemnification arrangements it issues or modifies, if these arrangements are within the scope of the interpretation. In addition, the Company must continue to monitor the conditions that are subject to the guarantees and indemnifications in order to identify if a loss has incurred. If the Company determines it is probable that a loss has occurred, then any such estimated loss would be recognized under those guarantees and indemnifications and would be recognized in the Company's consolidated statements of operations and corresponding consolidated balance sheets during that period.

Indemnification

The Company generally indemnifies its distributors, value added reseller and network operators against claims brought by a third party to the extent any such claim alleges that the Company's product infringes a patent, copyright or trademark or violates any other proprietary rights of that third party. Although the Company generally tries to limit the maximum amount of potential future liability under its indemnification obligations, in certain agreements this liability may be unlimited. The maximum potential amount of future payments the Company may be required to make under these indemnification agreements is not estimable.

The Company indemnifies its directors and officers and select key employees, including key employees serving as directors or officers of the Company's subsidiaries, for certain events or occurrences, subject to certain limits, while the director or officer is or was serving at the Company's request in such capacity. The term of the indemnification period is for the director's or officer's term of service. The Company may terminate the indemnification agreements with its directors, officers or key employees upon the termination of their services as directors or officers of the Company or its subsidiaries, or the termination of activities for which indemnification has been provided, but termination will not affect claims for indemnification related to events occurring prior to the effective date of termination. The maximum amount of potential future indemnification is unlimited; however, the Company has a director and officer insurance policy that limits its exposure. The Company believes the fair value of these indemnification agreements is minimal.

Warranties

The Company offers a standard warranty on its products, with the term depending on the product, and records a liability for the estimated future costs associated with potential warranty claims. The Company's responsibility under its standard warranty is the repair or replacement of in-warranty defective product, or to credit the purchase price of the defective product, at its discretion, without charge to the customer. The Company's estimate of future warranty costs is largely based on historical experience factors including product failure rates, material usage, and service delivery cost incurred in correcting product failures. The standard warranty is included in either Other current liabilities or Other noncurrent liabilities on the Company's consolidated balance sheets, depending on the time period covered by the warranty. The Company also offers an extended warranty for purchase that represents a future performance obligation for the Company. The extended warranty is included in deferred revenues (both current and noncurrent) on the consolidated balance sheets and recognized on a straight-line basis over the term of the extended warranty. The warranty costs are reflected in the Company's consolidated statements of operations within cost of revenues.

Legal proceedings

Third parties may from time to time assert legal claims against the Company. The Company records accruals for loss contingencies to the extent that it concludes it is probable that a liability has been incurred and the amount of the related loss can be reasonably estimated. The Company evaluates, on a regular basis, developments in legal proceedings and other matters that could cause a change in amounts recorded. Due to the inherent uncertainty involving legal matters, the ultimate resolution could differ from amounts recorded. There is no pending or threatened legal proceedings to which the Company is a party to, and in the Company's opinion, is likely to have a material adverse effect on its financial condition or results of operations.

Note 16. Revenue from contracts with customers

Disaggregation of revenues

Revenues by product category were as follows (in thousands, except percentages):

	Years ended December 31,					
	2019		2020		2021	
Point-to-MultiPoint	$ 156,157	59 %	$ 172,601	62 %	$ 204,756	61 %
Point-to-Point	71,618	27 %	60,435	22 %	60,761	18 %
Wi-Fi	35,678	13 %	39,990	14 %	66,933	20 %
Other	3,575	1 %	5,433	2 %	3,404	1 %
Total Revenues	$ 267,028	100 %	$ 278,459	100 %	$ 335,854	100 %

The Company's products are predominately distributed through a third-party logistics provider in the United States, Netherlands and China. The Company has determined the geographical distribution of product revenues based upon the ship-to destinations.

Revenue by geography were as follows (in thousands, except percentages):

	Years Ended December 31,					
	2019		2020		2021	
North America	$ 122,565	46 %	$ 147,328	53 %	$ 173,491	52 %
Europe, Middle East and Africa	85,930	32 %	80,927	29 %	93,082	28 %
Caribbean and Latin America	31,767	12 %	29,418	11 %	40,974	12 %
Asia Pacific	26,766	10 %	20,786	7 %	28,307	8 %
Total Revenues	$ 267,028	100 %	$ 278,459	100 %	$ 335,854	100 %

The following countries had revenues greater than 10% of total revenues:

- United States - $121.3 million for 2019, $140.7 million for 2020 and $165.3 million for 2021
- Italy - $38.4 million for 2019 and $31.6 million for 2020

Customers with an accounts receivable balance of 10% or greater of total accounts receivable and customers with net revenues of 10% or greater of total revenues are presented below for the periods indicated:

	Percentage of Revenues Years Ended December 31,			Percentage of Accounts Receivable As of December 31,	
	2019	2020	2021	2020	2021
Customer A	16 %	19 %	20 %	31 %	25 %
Customer B	11 %	*	*	*	*
Customer C	*	14 %	15 %	*	*
Customer D	*	*	*	10 %	*

* denotes percentage is less than 10%

Contract Balances

The following table summarizes contract balances as of December 31, 2020 and December 31, 2021:

	December 31, 2020	December 31, 2021
Trade accounts receivable, net of estimate for credit losses	$ 56,798	$ 68,788
Deferred revenue - current	6,471	6,880
Deferred revenue - noncurrent	4,448	5,363
Refund liability	$ 2,416	$ 2,516

Trade accounts receivable include amounts billed and currently due from customers. Amounts are billed in accordance with contractual terms and are recorded at face amount less an allowance for credit losses.

Deferred revenue consists of amounts due or received from customers in advance of the Company satisfying performance obligations under contractual arrangements. Deferred revenue is classified as current or noncurrent based on the timing of when revenue will be recognized. The changes in deferred revenue were due to normal timing differences between the Company's performance and the customers' payment.

The refund liability is the estimated amount expected to be refunded to customers in relation to product exchanges made as part of the Company's stock rotation program and returns that have been authorized, but not yet received by the Company. It is included within other current liabilities in the consolidated balance sheets.

Remaining performance obligations

Remaining performance obligations represent the revenue that is expected to be recognized in future periods related to performance obligations included in a contract that are unsatisfied, or partially satisfied, as of the end of a period. As of December 31, 2020 and 2021, deferred revenue (both current and noncurrent) of $10.9 million and $12.2 million, respectively, represents the Company's remaining performance obligations, of which $6.5 million and $6.9 million, respectively, is expected to be recognized within one year, with the remainder to be recognized thereafter.

Revenue recognized during the year ended December 31, 2021 which was previously included in deferred revenues as of December 31, 2020 was $6.3 million. Revenue recognized during the year ended December 31, 2020 which was previously included in deferred revenues as of December 31, 2019 was $7.3 million.

Cost to obtain a contract

Sales commissions are incremental costs of obtaining a contract. The Company has elected to recognize these expenses as incurred due to the amortization period of these costs being one year or less.

Note 17. Leases

The Company has operating leases for offices, vehicles, and office equipment. Leases with a term of 12 months or less are not recorded on the consolidated balance sheets, and are expensed on a straight-line basis over the lease term.

Right-of-use ("ROU") assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The Company's lease payments are typically fixed or contain fixed escalators. The Company's leases typically include certain lock-in periods and renewal options to extend the lease, but does not consider options to extend the lease it is not reasonably certain to exercise. The Company elected the practical expedient to not separate the lease and non-lease components of its leases and currently has no leases with options to purchase the leased property.

The components of lease expense were as follows and are included in general and administrative expense (in thousands):

	Year Ended December 31, 2020	Year Ended December 31, 2021
Operating lease cost	$ 2,586	$ 2,592
Short-term lease cost	341	283
Variable lease costs	375	500
Total lease expense	$ 3,302	$ 3,375

Supplemental balance sheet information related to leases were as follows (in thousands, except lease term and discount rate):

	Balance Sheet Caption	December 31, 2020	December 31, 2021
Operating leases:			
Operating lease assets	Operating lease assets	$ 5,083	$ 5,899
Current lease liabilities	Other current liabilities	$ 2,167	$ 2,116
Noncurrent lease liabilities	Noncurrent operating lease liabilities	$ 3,332	$ 4,112
Weighted average remaining lease term (years):			
Operating leases		3.35	3.35
Weighted average discount rate:			
Operating leases		8.36 %	6.15 %

Supplemental cash flow information related to leases were as follows (in thousands):

	2020	2021
Supplemental cash flow information:		
Cash paid for amounts included in the measurement of lease liabilities	$ 2,701	$ 2,674

The Company's current lease terms range from one to five years and may include options to extend the lease by one to four years.

Remaining maturities on lease liabilities at December 31, 2021 is as follows (in thousands):

	Operating leases
2022	$ 2,445
2023	2,108
2024	1,086
2025	843
2026	419
Thereafter	—
Total lease payments	6,901
Less: interest	673
Present value of lease liabilities	$ 6,228

Note 18. Related party transactions

The Company follows ASC 850, *Related Party Disclosures*, for the identification of related parties and disclosure of related party transactions. A party is considered to be related to the Company if the party directly or indirectly or through one or more intermediaries, controls, is controlled by, or is under common control with the Company. Related parties also include principal owners of the Company, its management, members of the immediate families of principal owners of the Company and its management and other parties with which the Company may deal.

For the years ended December 31, 2019, 2020 and 2021, Vector Capital Management, LP, an entity related to VCH, L.P., charged $0.3 million, $0.0 million and $0.0 million, respectively, for management and oversight fees. The Company did not have any amounts due to Vector Capital Management, LP at December 31, 2020 and 2021. On July 3, 2019, the Company paid $5.6 million to Vector Capital Management, L.P. from the net proceeds from the Company's IPO for the payment of outstanding management fees. In connection with the IPO and the payment of these fees, the VCH LPA was terminated.

In connection with the Recapitalization and upon consummation of the Company's IPO, the Company issued shares to VCH, L.P. representing the amount of unreturned capital and accumulated yield payable to holders of Class A Units of VCH, plus the residual shares of the Company's value attributable to VCH's ownership after such return, based on the IPO price of $12.00 per share. After/completion of the Recapitalization and the offering, the Company is neither party to nor subject to any obligations under the VCH LPA.

LEASE DEED

THIS LEASE DEED together with its schedules and annexures (hereinafter referred to as the "**Lease Deed**") is executed at Bangalore on this the **12th day of April, Two Thousand Twenty One (12 - 04 - 2021)** ("**Effective Date**").

BETWEEN

Mr. Jimmy Paymaster, aged 59 years, residing at F. Madhu Kunj, 2/8, Artillery Road, Ulsoor, Bangalore 560008, holder of PAN: ABZPP1445L (hereinafter referred to as "**Lessors 1**", which expression shall unless excluded by or repugnant to the subject or context thereof be deemed to include his legal heirs, administrators and permitted assigns) of the **First Part**

AND

M/s Qualitas Property Consulting LLP, a limited liability partnership registered under the Limited Liability Partnership Act, 2008, having LLPIN: AAA-6430 and its registered office at 3A S J R East Wood, East Wood Layout BA Harlur Road, Off Sarjapur Road, Bangalore 560102 and holder of PAN: AAAFQ3392B (hereinafter referred to as "**Lessors 2**", which expression shall unless excluded by or repugnant to the subject or context thereof be deemed to include its successors and permitted assigns) of the **Second Part**

AND

Cambium Networks Private Limited, a company incorporated under the Companies Act, 1956, having CIN U74990KA2012PTC085236 and its registered office at 5th Floor, Quadrant 1, Umiya Business Bay Tower 2, Outer Ring Road, Kadubeesanahalli, Varthur Hobli Road, Bangalore East Taluk, Bangalore 560037 and holder of PAN: AAECC7182N, represented herein by its authorised signatory, Mr. Biju Kunjukunju, Vice President – India Engineering Operations referred to as the **"LESSEE"**(which expression shall unless excluded by or repugnant to the subject or context thereof be deemed to include its successors and permitted assigns) of the **Third Part.**

Hereinafter, (i) Lessoe 1 and Lessors 2 will be collectively referred to as the "**Lessors**", and (ii) "**Parties**" will mean a collective reference to the Lessors and the Lessee and "**Party**" will mean any of them.

WHEREAS:

I. Umiya Holding Pvt Ltd was the absolute owner of the area 69,906 sqft along with 6,313 sqft undivided share in the internal roads and common entrance in the Cessna Business Park, Comprising of Lands in Survey Numbers. 10/1A, 10/3, 10/1B,10/2 and 11 measuring 76,219 sqft having Khata No.172/2 issued by the Bruhat Bangalore Mahanagara Palike (BBMP) situated at Kadubeesanahalli Varthur Hobli Bangalore East Taluk more fully described in the Schedule 'A' attached hereto and hereinafter referred to as the as **Schedule 'A' Property**";

II. The Lessors have further represented that the Occupancy Certificate for the said Building has been obtained under Reference **No: OC/27/16 dtd 29-09-2016.**

III. The Demised Premises of 9,750 sq ft of Super Built Area along with 15 Car Parks is part of the 5th floor, Quadrant 3 of Umiya Business Bay 2, that was sold by Umiya Holding Private Limited to the Lessors as follows:

(A) To Lessors 1, an area of 7,150 sq ft alongwith 11 Car Parks vide Sale Deed dated 03.04.2017 registered as Document No.32/17-18 with the Office of the Sub Registrar Shivajinagar; and

(B) To Lessors 2, an area of 2600 sq ft alongwith 4 Car Parks vide Sale Deed dated 24.03.2017 registered as Document No. 7142/16-17 with the Office of the Sub Registrar Shivajinagar.

IV. The Lessors have offered this area of 9,750 sqft of Super Built-up Area, on the 5th Floor, Quadrant 3 in Umiya Business Bay-II (herein referred to "**Building**"), which has been constructed on the Schedule 'A' Property in the development known as Cessna Business Park, Maratahalli - Sarjapur Outer Ring Road Bangalore (hereinafter referred to as "**Demised Premises**", more fully in Schedule 'B' attached hereto. The Lessors represents that the sanctioned usage of the Demised Premises is commercial, and there are no legal impediments for using the Demised Premises for conducting commercial business activities by the Lessee. For the sake of clarity "Super Built-up Area" as used in this Lease Deed shall, in respect of the Building or part thereof, mean (i) the built up area of such Building (or part thereof) including walls and external finish (ii) the proportionate share in all the Common Areas, amenities and services of such Building (or part thereof) made applicable to all tenants of the building and (iii) amenities and services provided in the terrace floor of the Building made applicable to all tenants of the building. It shall not include external staircases, open terrace areas, basements, stilt floor and parking spaces.

V. AND WHEREAS, the Parties are executing this Lease Deed to record the terms and conditions in respect of the lease of the Demised Premises by the Lessee.

NOW THEREFORE THIS LEASE DEED WITNESSETH AS FOLLOWS:

In consideration of the monthly rent herein reserved (Rent) and payable by the Lessee and of the mutual covenants of the Parties under this Lease Deed, the Lessors hereby agrees to grant on lease unto the Lessee and the Lessee agrees to take on lease the Demised Premises on the terms and conditions contained in this Lease Deed with easements, rights and advantages appurtenant thereof from the Effective Date as defined hereunder ("**Lease**").

1. **Handover Date:**

The Lessors has on the Effective Date granted possession to the Lessee to enter upon the Demised Premises from for the purpose of enabling the Lessee to undertake its fitouts on the Demised Premises.

2. **Tenure of Lease:**

The tenure of lease shall be for a period of 5 (Five) years ("**Lease Term**") from the Lease Commencement Date (hereinafter defined). The Lessee will be entitled to renew the lease of the Demised Premises upon expiry of the Lease Term for further terms of two (02) years each (each, an "**Additional Term**") as laid down in Clause 6 by providing to the Lessors at least 4 months' notice (prior to the expiry of the Lease Term) in writing of such intention to renew the lease of the Demised Premises; and the Lessors will, in this regard, execute fresh lease deeds in favour of the Lessee.

3. **Lease commencement Date:**

The Lease shall commence from the Effective Date ("**Lease Commencement Date**") which is 12th day of April, 2021 and shall thereafter be registered.

4. **Rent Commencement Date:**

Rent for the Demised Premises shall be payable commencing from 10th May 2021 ("**Rent Commencement Date**").

5. **Lock-in Period:**

The lock-in period is for an initial 5 (five) Years from the Lease Commencement Date ("**Lock-in Period**"), it being clarified that there shall be no Lock-in Period in any Additional Term. If during the Lock-in Period, this Lease Deed is terminated (i) by the Lessee not for the reasons mentioned in Clause 18(b)(i), or (ii) by the Lessor in accordance with Clause 18(b), then the Lessee shall be obligated to pay the Rent for the unexpired portion of the Lock-in Period.

6. <u>Renewal of Lease:</u>

On expiry of the Lease Term, the Lessee shall have the sole option to renew the lease of the Demised Premises for an Additional Term(s) on the mutually agreeable terms and conditions by way of execution and registration of a fresh lease deed. The Lessee shall provide written notice conveying its intention of such renewal of the Lease to the Lessors at least 4 (Four) months prior to the expiry of the Lease Term and the Lessee and the Lessors shall execute and register fresh lease deed for the Additional Term. It is hereby clarified that there shall be no Lock-in Period applicable nor shall any additional security deposit be payable by the Lessee for such Additional Terms.

For any extension of the Lease Term beyond 5 years from the Effective Date, the Parties shall agree to such extension on the basis of fresh lease deed only.

7. <u>Rent</u>

a) The Rent for the Demised Premises is Rs.65/- (Rupees Sixty Five only) per sq. ft. of Super Built up Area per month ("**Rent**") which shall be payable in advance on or before the 10^{th} (tenth) of the current/applicable month, after appropriate deductions for income tax at source to the Lessors in proportion to the Super Built Up Area between them. The Rent shall be paid by cheque or wire transfer in favour of the Lessors.

b) 15 car parks shall be provided in the basement /Surface of the Building for the exclusive use of the Lessee, at Rs.3,500/- rental per car park per month. The car parking rent shall be paid by the Lesses to the Lessors in proportion to the car parks owned between them as set out in Recital III above.

c) The Lessors shall raise their invoices no later than the 1^{st} (First) of every month for which the Rent and car parking rents are due. The invoice will clearly identify the taxes and rates therein.

8. <u>Enhancement/Escalation of Rent & Car Park Rent</u>

The Rent above reserved for the Demised Premises shall be subject to enhancement at the rate of 7**% (Seven percent)** for 2^{nd} and 3^{rd} year (i.e., commencing from the 13^{th} month and 25^{th} month respectively) on the last paid Rent from the Lease Commencement Date. There shall be no escalation on 4^{th} year (i.e., from the 37^{th} month to the 48^{th} month). In the 5^{th} year (i.e., commencing from the 49^{th} month) Rent shall be enhanced at the rate of 15% (Fifteen percent) on the last paid Rent. There shall be no escalation on/increase of the Security Deposit (hereinafter defined) applicable whether during the Lease Term or any Additional Term thereafter.

9. <u>Interest Free Refundable Security Deposit:</u>

The Lessee is required to pay to the Lessors an interest free fully refundable security deposit of Rs. 63,37,500 (Rupees Sixty Three Lakhs Thirty Seven Thousand Five Hundred only) equivalent to the Rent for a period of 10 months ("**Security Deposit**").

The Security Deposit equivalent to 3 months' rent amounting 19,01,250/- (Rupees Nineteen Lakh One Thousand Two Hundred and Fifty Only) has been partially paid as follows:

a) Rs. 13, 94, 250 (Rupees Thirteen Lakhs Ninety Four Thousand Two Hundred Fifty) paid vide wire transfer to Lessor 1 on 25^{th} March 2021;
b) Rs. 5,07,000 (Rupees Five Lakhs Seven Thousand) paid vide cheque/demand draft/wire transfer to Lessor 2 on 25^{th} March 2021;

receipt of which is hereby acknowledged and accepted by the Lessors.

The Lessee shall pay the balance of the Security Deposit equivalent to 7 months' rent amounting to 44,36,250/- (Forty-Four Lakh Thirty-Six Thousand Two Hundred and Fifty Only) simultaneously at the time of signing this Lease Deed as follows:

a) Rs. 32,53,250 (Rupees Thirty Two Lakhs Fifty Three Thousand Two Hundred Fifty) paid vide wire transfer to Lessor 1;
b) Rs. 11,83,000 (Rupees Eleven Lakh Eighty Three Thousand) paid vide cheque/demand draft/wire transfer to Lessor 2;

Upon expiry of the Lease Deed or earlier termination of this Lease Deed, the Lessors shall refund the entire Security Deposit to the Lessee simultaneous to the Lessee handing over the vacant and peaceful possession of the Demised Premises (save reasonable wear and tear) to the Lessors. In the event of failure to refund the Security Deposit, the Lessors shall be liable to pay interest @ 18% p.a. till actual payment and the Lessee shall be entitled to retain the possession of the Demised Premises without being liable to pay Rent and be exempt from any liability to the Lessors in any manner. However the Lessee is liable to pay for the maintenance, electricity and chiller charges during this duration.

10. Maintenance Services

(i) UMIYA Services shall be the maintenance service provider and the Lessee shall enter into a separate maintenance agreement ("**Maintenance Agreement**") with Umiya Services ("**Maintenance Service Provider**"). A detailed 'Scope of Maintenance Services' has been provided by the Maintenance Service Provider which is annexed as Annexure A.

(ii) The Maintenance Agreement shall be co-terminus with the Lease Deed for the Demised Premises.

(iii) The Lessee shall pay the maintenance charges at the rate of **Rs. 8.51/-(Rupees Eight and Fifty One Paise Only)** plus Applicable Taxes per square feet of Super Built-up Area per month ("**Maintenance Charges**") of the Demised Premises.

(iv) The Maintenance Charges and Electricity Charges shall be applicable from Lease Commencement Date.

(v) a)Maintenance Charges shall be payable monthly on or before the 10th day of each month for the current /applicable month for which it is due upon the issuance of the invoice on 1st of every month.
b) Electricity and chiller charges to be paid on or before the 10th day of every month for the previous month upon submission of electricity bill/consumption details.

(vi) For the computation of Rent and Maintenance Charges, the super built up area shall not include the car parking space.

(vii) The Maintenance Charges shall be subject to escalation by 5% (five percent) on 1st of April every year. The first enhancement shall be on 1st April 2022.

(viii) The Lessee agrees to pay enhancement in the Maintenance Charges due to any actual increase in the cost subject to the Lessors providing documentation substantiating such increase and the same shall be made applicable to all tenants in the Building.

The Lessee shall during the entire period of Lease attend to all routine day to-day maintenance of the Demised Premises at its own cost.

(ix) If the Lessee is in default in making the payments towards the Maintenance Charges and Electricity Charges to the Maintenance Service provider, then the Lessee shall be liable to pay a penalty of 12% interest per annum on the amount due.

(x) Electricity consumption (BESCOM/Self-Generated or Renewable Power) to be charged on BESCOM tariffs, DG Power consumption charges @ **Rs.24/- per unit** plus applicable taxes will be paid by the Lessee (collectively “**Electricity**

Charges"). Any transmission loss shall be borne by the Lessee in proportion to the usage.

(xi) In case the Lessee requires additional power (over and above what is provided above mentioned),the Maintenance Service Provider would facilitate the process with the local power authority and all related costs for the same shall be paid by the Lessee.

(xii) The rates calculated are based on the present prevailing rates of the EB Power/HSD (High Speed Diesel).Prices may be revised in case of drastic changes in the market price.

(xiii) If the Lessee appoints a Vendor to carry out the fit outs, the Vendor shall pay a deposit of **Rs.1,00,000/- (Rupees One Lakh only)** to Umiya Services as a security deposit against damages. The Lessors will be notified by the Vendor on completion of the fit out activity.The security deposit shall be refunded in full if there are no damages caused as a part of the fit out activity which is attributed to the Vendor. If any damages have been casued, the Vendor will make good the damage or equivalent amount deducted and the balance amount will be refunded to the Vendor.

(xiv) The Lessee shall follow the rules and regulations set by the Maintenance Service Provider in the Building Bye-Laws which shall be annexed as Annexure B in the Maintenance Agreement.

<u>11. Fittings and Fixtures in the Demised Premises and Maintenance:</u>

(i) The Lessors shall provide a warm shell.

(ii) The Lessee shall use the Demised Premises carefully and diligently and shall not cause any damage to the Demised Premises and amenities provided therein. However, normal wear and tear is excepted.

(iii) The Lessee shall be entitled to carry out additional fittings and fixtures in the Demised Premises at its cost, which shall include electrical and communication appliances and any other equipment/fittings, cubicles, partitions etc., required for its activities.Such improvements or alterations shall conform to the applicable local building regulations ensuring that no damage is caused to the structure of the building. Upon the expiration or termination of this Lease, the Lessee shall remove all the improvements. The Lessee shall ensure that no damages are caused to the common areas during this activity. However, normal wear and tear is excepted.

(iv) Any permissions or authorizations required to be obtained such as CEIG approval, BBMP, FIRE etc. for Lessee`s improvements shall be Lessee`s sole responsibility, provided that Lessors will, at Lessee`s cost, provide any assistance or no-objection required for the procurement of such permission or authorization. The certificates that are procured by the Lessee shall be shared with the Maintenance Service Provider for their records.

(v) The Lessee shall bear the damage and repair cost, if any damage is caused while removing and replacing the fit outs in the Demised Premises by the Lessee. If the Lessee fails to bear this cost then, this cost shall be deducted by the Lessors from the refundable Security Deposit.

12. TAXES AND LEVIES

a) The Lessors shall bear and pay regularly and punctually, all the past, present and future taxes, rents, rates, cess, dues, duties and impositions, taxes, statutory dues in regard to the Demised Premises payable to any authority, including but not limited to land tax, building tax, corporation and house tax, local government charges pertaining to the Demised Premises, and the Lessee shall not have any liability whatsoever in this regard. In the event of the Lessors failing to comply with its obligation under this Clause, and there being any demand outstanding, or there being any threat of recovery from any statutory authority with regard to any outstanding amounts to them, or there being any demands raised on the Lessee by the concerned authorities, the Lessee shall communicate to the Lessors about such demand within a reasonable period of receipt of such notice by the Lessee. Upon receipt of such communication from the Lessee, the Lessors shall pay the amounts so demanded within the stipulated due date, failing which the Lessee shall pay the same to the concerned authority and the same shall be reimbursed to the Lessee by the Lessors up on submission of payment receipt or shall be recovered by the Lessee by way of deduction / adjustment in / from the Rent payable by the Lessee to the Lessors.

b) The Lessee shall bear and pay all applicable service tax. The Lessors shall remit the applicable goods and services tax ("**GST**") to the government as required under law, and produce proof of such payment to the Lessee from time to time. The Lessors shall share with the Lessee the service tax registration details. In the event the Lessee receives any notice from any authorities requiring payment of any taxes or any other outgoings, the Lessee shall forward the same to the Lessors as soon as possible. In the event of the Lessors not making any such required payment, the Lessee shall, pursuant to due notice to the Lessors and mutual discussions in this regard, be entitled to make payment of the same and shall thereupon be entitled to deduct the same from the Rent and other charges payable under the terms of this Lease Deed. The Lessors shall indemnify the Lessee for any and all losses incurred on account of demand/notices from any government authorities for non-payment of service tax and other taxes, cess, impositions and statutory dues during the Lease Term. This liability of the Lessors shall continue to hold good even after termination of this Lease Deed.

c) All taxes made applicable on Rent with respect to the Demised Premises for the tenure of the Lease shall be payable by the Lessee.

d) All current taxes and any new taxes that may be introduced by the statutory authorities from time to time, which is applicable on Rent with respect to the Demised Premises for the tenure of the lease shall be payable by the Lessee.

13. USE OF THE DEMISED PREMISES

a). The Lessee shall have an exclusive and lawful use and occupation of the Demised Premises during the Lease Term. The Lessee shall have unlimited access to the Demised Premises 24 hours a day, 7 days a week and 365 days a year, throughout the Lease Term and shall use the Demised Premises for the purpose of its business purpose as may be permissible in law and shall not carry out any illegal activity. Further the Lessee shall not store any hazardous, contraband or inflammable articles in the Demised Premises other than such articles required by the Lessee for its business purpose.

14. THE LESSORS' REPRESENTATIONS, WARRANTIES AND COVENANTS

a) The Lessors are the absolute owners of and have clear title to the Demised Premises and the right and authority to grant on Lease the Demised Premises in favour of the Lessee on the terms contained herein for commercial use thereof by the Lessee and the Lessors have obtained all the necessary statutory permissions, approvals, sanctions and clearance from the concerned authorities, and the Lessors have met all building code and occupancy requirements for the Lessee`s use. The Lessors shall indemnify and keep the Lessee indemnified in respect to the above.

b) The Demised Premises is free from any pending litigation, third party claims, acquisition proceedings and any encumbrances, whatsoever and the Lessors have not entered into any arrangement and/or agreement with any third person/persons for providing rights, use, occupation, access, etc., of the Demised Premises to which the Lessee is entitled to under this Lease Deed.

c) The Lessors have obtained requisite municipal permissions, sanctions and approvals from all concerned authorities for use of the Demised Premises for the commercial business purpose to suit the business activities of the Lessee as permitted under laws.

d) The Building is constructed strictly in accordance with the building plan, sanctioned and approved by the concerned authorities. The Lessors have not committed any breach of any statutory/municipal regulations or contractual obligations or of any applicable laws with respect to the Demised Premises.

e) The Lessors have obtained all the required permission for utilities in the Demised Premises and all required clearance/approvals from the Central/State/local authorities for the use of the Demised Premises by the Lessee.

f) The Lessors shall co-operate with the Lessee by way of issuing NOC`s providing any documents in connection with the Demised Premises to enable the Lessee to get the Demised Premises registered under the provisions of the various laws as applicable.

g) The Lessee paying the Rent and other charges payable hereunder, if any, regularly and duly observing and performing the terms and conditions herewith, shall be entitled for a quiet and peaceful enjoyment and possession of the Demised Premises during the Lease tenure, without any obstructions interruption or disturbance from the Lessors or any person claiming through or in trust for the Lessors or otherwise.

h) The Lessors shall be responsible and liable to comply with all applicable laws for the possession, installation and use of the furniture, fixtures and facilities in the Demised Premises.

i) The Lessors shall ensure that the Lessee at all times during the currency of this Lease enjoys exclusive and peaceful possession of the Demised Premises. They shall insure and keep in full force the insurances relating to the Demised Premises, to full reinstatement value, with reputed insurance companies against all commercial general liability and all insurable risks to the Demised Premises, including without limitation, damage to or destruction of the Demised Premises due to natural disasters, acts of God, fires, acts of terrorism, civil commotion and aerial and other accidents, any other Force Majeure Event, etc., during the Lease Term and any Additional Term. All damage shall be repaired by the Lessors and the Demised Premises reinstated at the cost of the Lessors as soon as reasonably possible, the Lessors utilising all available insurance proceeds for such purpose. The Lessors shall furnish the Lessee with a certificate of insurance showing coverage in place with at least 30 (thirty) days' prior written notice to the Lessee if the policies are to be cancelled, renewed or materially altered so as to affect the coverage of the policies. The cost for the same, which shall be based on market rates will form part of the maintenance charge payable by the Lessee as per Clause 10.

j) The Lessors shall not object to the Lessee engaging its own security personnel in respect of the Demised Premises during the Lease Term who shall be based in the Demised Premises.

k) The Lessors shall accommodate any requests by lessee for access to the premises for getting the premises ready by installation of UPS, getting internet connectivity etc.

l) The Lessors does not have any liability for any taxes, or any interest or penalty in respect of the Demised Premises, of any nature that may be assessed against the Lessee or become a lien against the Demised Premises. All property taxes, electricity, water charges and all other outgoings in respect of the Demised Premises prior to the handover of the Demised Premises have been properly remitted by the Lessors and there are no arrears, outstanding dues etc. as on the Lease Commencement Date.

m) The Lessors shall observe and perform all the terms and necessary conditions, agreements, covenants and provisions on which the Lessee occupies the Demised Premises and shall not do, omit or suffer to be done anything whereby the Lessee's right to occupy the Demised Premises is hindered, forfeited or affected in any prejudicial manner.

n) During the Lease Term, the Lessors shall ensure that entrance is provided to the Lessee for the Demised Premises to ingress and egress without causing hindrance or obstructing the free movement. The entrance and passage so provided shall be common and will be shared with other tenants of the Building and to be used by the Lessee, its employees, visitors, agents and contractors.

o) Except for the period of subsistence of a Force Majeure Event (hereinafter defined), the Lessors shall at all times, from the Lease Commencement Date to the expiry of the Lease Term or the prior determination thereof, ensure that the Lessee enjoys quiet, unhindered and peaceful possession of the Demised Premises according to the terms of this Lease Deed which includes the provision of all amenities such as power (1.0 KVA of power for every 100 square feet of the Demised Premises including air conditioning load) and water supply, 100% backup power, lifts, escalators, lighting, security, air conditioning etc. at all times. The Lessors shall at its own cost attend to all major structural repairs of within the Demised Premises within 15 (fifteen) days of such defect / damage being notified by the Lessee to the Lessors in writing and at their cost and ensure the replacement of the defect/damaged parts, unless the damage is caused due to the negligence of the Lessee. In case the Lessors fails to arrange for the repairs within the period of 15 (fifteen) days thereof, the Lessee shall be at liberty to carry out the same at its cost and recover the entire cost from the Lessors, by deducting any costs incurred for such repairs from future Rent payable by the Lessee to the Lessors from time to time subject to receipt of bills incurred by them.

p) The non-fulfillment of any of the above representations and warranties shall be deemed as breach of this Lease Deed by the Lessors, unless (i) the Lessee is solely responsible for such breach; or (ii) such breach is caused by a Force Majeure Event.

15. THE LESSEE`S COVENANTS

The Lessee hereby covenants with the Lessors as follows:

a) To observe and perform all the terms and conditions, covenants and provisions of the Lease Deed to be observed and performed by the Lessee;

b) To regularly pay Rent at the time and in the manner aforesaid; subject to deduction of income tax at source, as applicable under the Income Tax Act, 1961, within the time stipulated herein and issue appropriate TDS Certificate to the Lessors for tax deducted at source;

c) To use the Demised Premises only for business and allied purposes and not for any other illegal purpose;

d) On termination or expiry of the Lease the Lessee shall be required to reinstate the Demised Premises to the original condition. The Lessee shall, at the expiry or termination of the Lease Deed, have the right to remove any and all Lessee's improvements from the Demised Premises. However, the Lessee shall be liable to pay Lessors for any damages caused to the Demised Premises while removing their improvements from the Demised Premises, as mutually agreed between the Parties. The Lessors shall not be liable to reimburse the cost of the Lessee`s property which remains in the Demised Premises.

e) Not to do or suffer to be done anything whereby the Lessors's rights in respect of Demised Premises or any part thereof are prejudiced or adversely affected.

f) To permit the Lessors, its representatives and/or agents after receipt of twenty four (24) hours prior notice, to enter into the Demised Premises during working hours for the purpose of inspection of the Demised Premises and to carry out any repairs to the Demised Premises.

g) The Lessee shall keep the passages, common areas free from any debris, construction materials, security desks, office equipment, or anything that hinders free movement.

i) The Lessee shall register this Lease Deed with the Jurisdictional sub-registrar's office and shall pay stamp duty, registration charges and any other charges for the purpose of registering this Lease Deed.

16. MUTUAL INDEMNITY

a) The Lessors shall indemnify, defend and hold the Lessee harmless during Lease Term against any demands, claims, actions or proceedings that may be initiated against the Lessee or any losses, claims, charges, costs, expenses, damages suffered or incurred by the Lessee or any judgments or orders passed against the Lessee due to (i) any defect in title of Lessors to the Demised Premises; (ii) any breach of terms of the Lease; (iii) any misrepresentation or breach of any of the representations and warranties of the Lessors; (iv) any breach or non-fulfilment of any condition, covenant or undertaking of the Lessors;

and (v) non-compliance with permissions/clearances/ taxes and other statutory dues required for occupation of the Demised Premises or applicable laws in respect of the Demised Premises, resulting in Lessee being prevented from using the Demised Premises.

b) Lessors shall indemnify, defend and hold the Lessee harmless during the Lease Term against any demands, claims, actions or proceedings that may be initiated against the Lessee, and/ or in respect of the Demised Premises.

c) Lessee shall indemnify, defend and hold the Lessors harmless during Lease Term against any claims, damages, charges, expenses, costs, losses or injuries arising out of or relating to: (i) any breach of terms of the Lease; and (ii) any act or omission of the Lessee which results in violation of its legal, statutory, regulatory or other duty or obligation in connection with the use of Demised Premises.

d). Save and except any liquidated damages which may be agreed between the Parties in the future, neither Party will be liable to the other for any incidental, consequential, penal, exemplary or the like damages, or any direct or indirect loss of profits or business or opportunity or any action in tort even if advised of the possibility of such claims.

17. Assignment/Subsequent Transfer

The Lessee may as a result of an acquisition; reorganization; definitive scheme, arrangement, undertaking or agreement with respect to any of its assets or liabilities; merger; de-merger or consolidation assign / novate this Lease to any third party with the prior approval of the Lessors at any time, which approval shall not be unreasonably delayed or withheld by the Lessors. In case of such assignment / novation, the third party shall be bound by all the terms of the Lease Deed and the Lessee shall be released from all obligations under the lease.

18. TERMINATION

a) The Parties will have no right to terminate this Lease Deed during the Lock-in Period except in accordance with Clause 18 (b).

b) Notwithstanding the Lock In-Period, either Party shall be entitled to terminate this Lease Deed at time during Lease Term in case of breach by the other Party of any terms and conditions, covenants and/or representations and warranties of this Lease Deed; provided that:

(i) Such termination shall not be effective unless the non-breaching Party has given a written notice of 30 (thirty) days to the breaching Party setting out the details of such breach to cure the breach and the breaching Party not having cured or rectified such breach within the said 30 (thirty) days, it being clarified that the Lessee wtill be liable to pay to the Lessors and the Maintenance Service Provider the agreed Rent and Maintenance Charges for the above mentioned 30 (thirty) days' notice period; and

(ii) Where such breach relates to non-payment by the Lessee of Rent and/or Maintenance Charges payable in respect of the Demised Premises, the Lessors will be entitled to forthwith terminate the Lease Deed only **(A)** in the event that the Lessee has failed to pay the agreed Rent and Manintenance Charges for two or more consecutive months(**"Defaulted Payment"**); and **(B)** after providing 30 days' notice in writing to the Lessee specifying such breach and the Lessee not having remedied or cured such breach within such 30 (thirty) days' notice period. It is hereby clarified that where the Lease Deed is terminated pursuant to this Clause 18(b)(ii), the Lessee will be liable to pay the Defaulted Payments and the agreed Rent and Maintenance Charges for the above mentioned 30 (thirty) day's notice period to the Lessors/Maintenance Service Provider.

c) Where the termination of this Lease Deed by the Lessee is not for the reasons metioned in Clause 18(b)(i) above or where the termination by the Lessors is in accordance with Clause 18(b), the Lessee shall be obligated to pay the Rent for the unexpired portion of the the Lock-in Period or have an amount equivalent to such Rent for the unexpired portion of the Lock-in Period adjusted from the Security Deposit; and the balance amount, if any, would be payable by the Lessors to the Lessee towards refund of Security Deposit.

d) Upon expiry or termination of the Lease Deed, the Security Deposit and all other deposits paid by the Lessee hereunder will be liable to be refunded immediately to the Lessee; and simultaneous with such refund of Security Deposit and all such other deposits to the Lessee, the Lessee will vacate the Demised Premises and hand over vacant possession of the Demised Premises to the Lessors.

19. Applicability of TDS

The Lessee shall deduct the TDS only on Rent and Maintenance Charges. TDS is currently not applicable on Electricity and BTU Charges.

20. Force Majeure:

Neither Party shall be liable for any breach resulting from:

(a) acts of God (including floods, earthquakes, storms and other natural disasters), war, insurrection or riots, epidemic or pandemic~~,~~ government action (including district, state and nation-wide directives or orders, court orders), prohibitory orders of any regulatory authority implementing lockdown resulting in any complete closure of Lessee's business or Lessee's inability to access and use the Demised Premises for its business activities; or

(b) terrorist acts or attacks, lightning, earthquake, fire, war, civil war, insurrection, riots, bandh, boycotts, or other violence not attributable to either Party; which results in damage to or destruction of the Demised Premises and prevents the Lessee from accessing and using the Demised Premises or the Lessors from performing its obligations under this Lease Deed;

(each of such events to be referred to as "**Force Majeure Event**"). Where the Demised Premises is unable to be accessed physically or equipment/servers remotely or used by the Lessee for a period in excess of 60 (Sixty) days due to destruction/damage or government restrictions, then the Lessee may, notwithstanding the Lock-in Period and without prejudice to its rights under any provisions of this Lease Deed, terminate this Lease Deed with 30 (Thirty) days' notice to the Lessors in writing and upon expiry of the said 30 (Thirty) days, this Lease Deed shall stand terminated immediately subject to Clause 9 and the refund of the Security Deposit and any other deposit by the Lessors (including the Maintenance Deposit by the Maintenance Service provider) to the Lessee.

Notwithstanding the above, in case of destruction or damage to the Demised Premises, the Lessee requires the Lessors to restore the Demised Premises the Lessors shall endeavor to the satisfaction of the Lessee, to restore and reinstate the Demised Premises within the shortest possible time taking into consideration the nature of repairs required to be done, during which time the rent and other charges pertaining to use of Demised Premises shall not be payable until the Demised Premises is made ready for use and occupation by the Lessee. In the event the Demised Premises or any part thereof has been rendered unfit for use during such period, the Lessee shall be at liberty to request the Lessors to provide alternative premises to the sole satisfaction of the Lessee.

21. Dispute Resolution

In the event of any dispute or difference arising between the Lessors and the Lessee hereto concerning or relating to the interruption of these presents or the interpretation of effect of any provisions thereof or relating to the liability or obligation on the part of any of the parties hereto, the same shall be referred to arbitration in accordance with the provisions of the Arbitration and Conciliation Act, 1996 (or any statutory modifications or re-enactments thereof for the time being in force) before an arbitral tribunal of three arbitrators where the Lessors (acting jointly) and the Lessee will each be entitled to appoint one arbitrator and the two arbitrators so appointed will nominate the presiding third arbitrator. The award passed by the majority of arbitrators shall be binding on the Parties. The seat of arbitration will be Bangalore and the arbitration proceedings conducted in English. The arbitral panel will award costs of the arbitration.

Subject to the preceding paragraph, the courts in Bangalore shall have exclusive jurisdiction over any dispute, differences or claims arising out of this Lease Deed.

22. Governing Law

This Lease Deed and any other document connected to this Lease Deed between the Parties shall be governed and construed in accordance with the laws of the Republic of India.

23. Entire Deed

This Lease Deed shall constitute the entire agreement and understanding with respect to the subject matter hereof and shall supersede all prior discussions, representations or agreements between the Parties.

24. AMENDMENTS AND WAIVERS

No modification, amendment or waiver of any of the provisions of this Lease Deed shall be effective unless made in writing specifically referring to this Lease Deed and duly signed by each of the Parties.

25. Notices:

Any notice to be issued either to the Lessee or to the Lessors shall be addressed and sent to their respective addresses mentioned in this Lease Deed by R.P.A.D or by certificate of posting or by personal hand delivery to the addressees of the Parties shown in this Lease Deed or by electronic mail to the following email address:

Lessors 1: jfpaymaster@gmail.com

Lessors 2 : raghavendra@qualitasindia.com

Lessee:biju.kunjukunju@cambiumnetworks.com

Or to such other address as either Party may, for this purpose have intimated to the other in writing.

SCHEDULE 'A'

(Description of the Large Property)

All that piece and parcel of commercially converted land bearing Survey Nos. 10/1A, 10/3, 10/1B, 10/2 measuring in all about 69,906 sqft along with 6,313 sqft and Survey No.11 measuring 76,219 sqft undivided share in the internal roads and common entrance in the Cessna Business Park, Comprising of Lands in situated at Kadubeesanahalli Varthur Hobli Bangalore East Taluk

East: Internal Road;
West: Lands in Survey No.10/1B
North: Lands in Survey No.10/1A, 10/2 and 11 (Business Bay –I);
South: Property belonging to Mr. Chatrabhuj Bassarmal Pardhanani

SCHEDULE 'B'

(DEMISED PREMISES)

ALL THAT PIECE AND PARCEL of the building admeasuring 9,750 sqft of super built up area on the 5th Floor of the Building Umiya Business Bay – Tower 2, comprising of 8 levels (2nd to 9th Floors) of office space within Cessna Business Park situated on Maratahalli - Sarjapur Outer Ring Road, Bangalore East Taluk 560 037.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE EXECUTED THIS DEED OF LEASE AT BANGALORE ON THE DAY AND YEAR FIRST ABOVE WRITTEN.

By “Lessor No. 1”

/s/ Jimmy Paymaster
Mr. Jimmy Paymaster

For “Lessor No. 2”, M/S QUALITAS PROPERTY CONSULTING LLP

/s/ Raghavendra Krisnamurthy
Mr. Raghavendra Krishnamurthy
Designated Partner

For the “Lesses”, Cambium Networks Consulting Private Limited

Represented by its Authorised Signatory,

/s/ Biju Kunjukunju
Mr. Biju Kunjukunju
Vice President – India Engineering Operations

in the presence of:

WINTESSES:

1. **/s/ Channakeddy Ikeddy**

2. **/s/ P. Sonne gowda**

<u>Annexure A</u>

Scope of work for Maintenance Services (by the Service Provider / Developer)

Sl.No	Description
1	**Facility Management**
	Charges towards providing Professional Management Services by deputing qualified and experienced to manage the common area of the entire facility
	1.Facility Manager
	2.External Building Security
	3. External Façade & Maintenance
	4.Road within the compound housing “the Premises “ and the road up to the entrance security kiosk
2	**Engineering Services (For Common Area)**
	Charges for professional operation and maintenance services by deputing technically qualifies and experienced
	1.Electrical Supervisor & Technicians
	2.A/C technicians
	3. DG operators
	4. Plumber
	5. STP Operations
	For operating and maintenance of all HT/LT electrical installations, DG sets, A/C units, Fire Alarm and communication systems etc
3.	**Common area House – Keeping Service**
	Charges for rendering professional house – keeping services by deputing experienced House Keeping Supervisors and Staff for cleaning and maintenance of the common area and outside the premises
	Common area includes:
	Staircases, Lifts, Lift Lobbies, Service Lobbies, Ducts, DGs, Electrical Room, Pump room, OHT and UG sumps
4	**Toilets Maintenance:**
	Toilets will be maintained by Lessee within the office space
5	**Maintenance of AHU & Electrical room (within the office floor)**
	Maintenance of AHU & Electrical room
6	**Pest & Rodent Control Service**
	Charges towards carrying out pest and rodent control treatment for common areas.
7	**Landscaping Services**
	Charges towards deployment of gardener for maintaining the landscape area
8	**AMC Charges**
	1.DG
	2.A/C Chillers and AHU
	3.Transformers
	4.Electrical Panels
	5.Security System (in the common area)
	6.Lifts
	7.HSD Yard
	8.Pumps
9	Power Charges of common areas of the building proportionate on the super built up area leased by the tenant shall be included in this scope of maintenance

LEASE DEED

THIS LEASE DEED together with its Schedules and Annexures (hereinafter referred to as the "Lease Deed") is executed at Bangalore on this the 5th Day of August 2021**.**

BY:

1) **Mr. Sharath Kumar S.N and**
Mr. Murali Mohan S.N,
residing at No. 2, 2nd Cross,
Shankarmutt Road,
Shankarapuram,
Bangalore - 560 004.
PAN: AHLPS2341E / AHLPS2340F

2) **Mr. Manjunath Bijjahalli**,
Mrs. Padmini Manjunath Bijjahalli and
Mr. Vikramaditya Bijjahalli,
residing at No. 62 Shankarmutt Road,
Shankarapuram,
Bangalore – 560 004.
PAN: AATPB0355J / AEUPM1508B / AHEPV0695B

3) **Mrs. Battepati Sumana Reddy**,
residing at Sai Sadan Apartments,
Flat 4C. Saraswath Nagar,
Dargamitta, Nellore – 524 003.
Andhra Pradesh.
PAN: BSJPB9561P

4) **Mr. Sankalp Singh,**
residing at Singh Nursing Home,
Birla Road, Kolgawan.
Satna, Madhya Pradesh.
Represented by his Power of Attorney Holder,
Mr. Shivesh Gaurav.
PAN: AQZPS5461L

5) M/S Umiya Holding Private Limited
residing at No.29/3,
H.M Strafford, 2nd Floor,
7thCross,VasanthNagar,
Bangalore-560 052
Represented by Mr. Amrendra Singh.
PAN: AAACU4321R

6) **Mr. N.S. Varun and**
Mrs. N.S. Mangala,
residing at #417,
Middle School Road,
V.V. Purama,

Bangalore – 560 004.
PAN: ADGPV7366K / ABVPM1056A

7) **Mr. N.S. Nagaraj and**
Mrs. N. Mallika,
residing at Bhaskar Nilaya,
#8, 9th Cross,
Kumara Park West.
Bangalore – 560 020.
PAN: ABRPN9099G / ABRPN8664P

Hereinafter referred to as the **"LESSORS"** (which expression shall unless excluded by or repugnant to the subject or context be deemed to include its successors and assigns) of the **ONE PART**;

AND BETWEEN

M/s. Cambium Networks Private Limited, a company incorporated under the Companies Act, 1956, having CIN U74990KA2012PTC085236 and its registered office at 5th Floor, Quadrant 1, Umiya Business Bay Tower 2, Outer Ring Road, Kadubeesanahalli, Varthur Hobli Road, Bangalore East Taluk, Bangalore 560037 and holder of PAN: AAECC7182N, represented herein by its authorised signatory, Mr. Biju Kunjukunju, Vice President – India Engineering Operations referred to as the **"LESSEE"**(which expression shall unless excluded by or repugnant to the subject or context thereof be deemed to include its successors and permitted assigns) of the **OTHER PART.**

(The Lessors and the Lessee are individually referred to as "**Party**" and collectively referred to as "**Parties**")

A. **WHEREAS** the Lessors has represented to the Lessee that by and under two registered Sale Deeds dated 3rd October 2008 and 22nd November 2010 executed by M/s. Dynasty Developers Private Limited (later known as M/S Embassy Property Developments Limited) as the seller/vendor therein and M/s. Umiya Holding Private Limited as the purchaser therein and bearing registration No.VRT-1-02767-2008-09 and No. VRT-1-05311-2010-11 respectively, the said M/S Umiya Holding Private Limited acquired title to all that commercially converted lands presently being portion of Khata No.172/2 issued by the Bruhat Bangalore Mahanagara Palike (BBMP), comprising of lands in Survey No.10/1A, measuring 0.247 Guntas(zero point two four seven Guntas), Survey No.10/1B , measuring 1 (one) Acre and 3.745 Guntas(three point seven four five Guntas) and Survey No.10/2, measuring 13.05 Guntas(thirteen point zero five Guntas), Survey No. 10/3, measuring 1 Acre (one Acre) 0.500 Guntas(zero point five Guntas) and Survey No. 11, measuring 18.261Guntas (eighteen point two six one Guntas) in all measuring 2Acres (two Acres) 35.80Guntas(thirty five point eight zero Guntas), with 10.4582 Guntas(ten point four five eight two Guntas) of undivided share in the internal roads and common entrance in the Cessna Business Park (out of 1 Acre 27.32 Guntas), all of them situated at Kadubeesanahalli Village, Varthur Hobli, Bangalore East, more fully described in the Schedule 'A' below and hereinafter referred to as the '**SCHEDULE 'A' PROPERTY'**;

B. WHEREAS Umiya Holding Pvt Ltd has sold 56200 square feet (fifty six thousand and two hundred square feet) out of the Schedule ‘A’ Property to Mr. Chatrabhuj Bassarmal Pardhanani along with 5075 square feet (five thousand and seventy fives square feet) undivided share in the internal roads and common entrance in the Cessna Business Park, comprising of lands in Survey No. 10/1B measuring 22188 square feet (twenty two thousand one hundred and eighty eight square feet) square feet, Survey No. 10/3 measuring 28272square feet (twenty eight thousand two hundred and seventy two square feet), Survey No. 11 measuring 5760 square feet (five thousand seven hundred and sixty square feet) along with 5075 square feet (five thousand and seventy five square feet) undivided share in the internal roads and common entrance in the Cessna Business Park situated at Kadubeesanahalli Village, Varthur Hobli Bangalore East Taluk more fully described in the Schedule 'B' below and hereinafter referred to as the ‘**SCHEDULE 'B' PROPERTY’** and has retained the remaining land in the Schedule ‘A’ Property;

C. WHEREAS Umiya Holding Pvt Ltd being the absolute owner of the balance area 69,906 square feet (sixty nine thousand nine hundred and six square feet) along with 6,313 square feet (six thousand three hundred and thirteen square feet) undivided share in the internal roads and common entrance in the Cessna Business Park, Comprising of Lands in Survey Numbers. 10/1A, 10/3, 10/1B,10/2 and 11 measuring 76,219 sqft having Khata No.172/2 issued by the Bruhat Bangalore Mahanagara Palike (BBMP) situated at Kadubeesanahalli Village, Varthur Hobli Bangalore East Taluk more fully described in the Schedule 'C' below and hereinafter referred to as the **"SCHEDULE 'C' PROPERTY", has developed a property known as “Umiya Business Bay II”** comprising of a basement, ground floor, plus 9 (nine) upper floors **admeasuring 327903 square feet of Super Built Up Area.**

D. Thereafter the LESSORS have further represented that (a) the Occupancy Certificate for the said Building has been obtained under Reference **No: JDTP/OC 27-16/29-9-16** for occupying the premises which includes 20,055 square feet of super built up (SBA) area on the Fifth (5^{th}) floor in Quadrant 2 and 4, of the said Building, in the development known as Umiya Business Bay 2, Cessna Business Park, Kadubeesanahalli, Marathahalli-Sarjapur Outer Ring Road, Bangalore, (hereinafter referred to as the **“Demised Premises”**) and more particularly described in Schedule **B** written hereunder; (b) the sanctioned usage of the Demised Premises is commercial; (c) there are no legal impediments for using the Demised Premises for conducting commercial business activities by the Lessee. For the sake of clarity **“Super Built-up Area”** shall, in respect of the said Building or part thereof, mean (i) the built up area of the said Building (or part thereof) including walls and external finish,(ii) the balconies and sit outs, if any, in such building (or part thereof),(iii) the proportionate share in all the common areas, amenities and services of such Building (or part thereof) made applicable to all tenants/occupants of the building and (iv) amenities and services provided in the terrace floor of the Building made applicable to all tenants/occupant of the building. It shall not include external staircases, open terrace areas, basements, stilt floor and parking spaces.

E. Subsequently the Lessors have agreed to grant on lease the Demised Premises for a period of 5+5 years along with

30 earmarked Car Parking Slots including Two-wheeler (parking Slots), between Basement (Puzzle Car Park), Ground Floor, and First Floor of the said Building; and the Lessee has agreed to take on Lease the Demised Premises on the terms and conditions hereinafter appearing.

F. **WHEREAS** the Lessors have purchased the Demised Premises from M/S Umiya Holding Pvt Limited Vide Sale Deeds as mentioned below:

a) Mr. Sharath Kumar S.N. and Mr. Murali Mohan S.N - An area of 2000 Square feet on the 5th(Fifth) floor Unit 2(C) along with 3 Car Parks vide Sale Deed dated 10.05.2017, registered under Document Ref No. 774/2017-18.

b) Mr. Manjunath Bijjahalli, Mrs. Padmini Manjunath Bijjahalli and Mr. Vikramaditya Bijjahalli - An area of 2000 Square feet on the 5th(Fifth) floor Unit 2(B) along with 3 Car Parks vide Sale Deed dated 10.05.2017, registered under Document Ref No. 773/2017-18.

c) Mrs. Battepati Sumana Reddy - An area of 2600 Square feet on the 5th(Fifth) floor Unit 2(D) along with 4 Car Parks vide Sale Deed dated 27.05.2017, registered under Document Ref No. 1152/2017-18.

d) Mr. Sankalp Singh - An area of 1950 Square feet on the 5th(Fifth) floor Unit 2(A) along with 3 Car Parks vide Sale Deed dated 31.03.2017, registered under Document Ref No. 7384/2016-17.

e) Mr. N.S. Varun, Mrs. N.S. Mangala, Mr. N.S. Nagaraj and Mrs. N. Mallika - An area of 11275 Square feet on the 5th(Fifth) floor Unit 4(A) along with 17 Car Parks vide Sale Deed dated 22.03.2017, registered under Document Ref No. 6997/2016-17.

NOW THEREFORE THIS LEASE DEED WITNESSETH AS FOLLOWS:

In consideration of the monthly rent herein reserved (Rent) and payable by the Lessee and of the mutual covenants of the Parties under this Lease Deed, the Lessors hereby agrees to grant on lease unto the Lessee and the Lessee agrees to take on lease the Demised Premises on the terms and conditions contained in this Lease Deed with easements, rights and advantages appurtenant thereof from the Effective Date as defined hereunder ("**Lease**").

1. Handover Date:

The Lessors has on the Effective Date granted possession to the Lessee to enter upon the Demised Premises from August 05, 2021 for the purpose of enabling the Lessee to undertake its fitouts on the Demised Premises.

2. Tenure of Lease:

The tenure of lease shall be for a period of 5 (Five) years ("**Lease Term**") from the Lease Commencement Date (hereinafter defined). The Lessee will be entitled to renew the lease of the Demised Premises upon expiry of the Lease Term for further terms of Five (05) years each (each, an "**Additional Term**") as laid down in Clause 6 by providing to the Lessors at least 4 months' notice (prior to the expiry of the Lease Term) in writing of such intention to renew the lease of the Demised Premises; and the Lessors will, in this regard, execute fresh lease deeds in favour of the Lessee.

3. Lease commencement Date:

The Lease and Rent shall commence from the Effective date (Lease Commencement Date) which is the day of August 05, 2021 and shall thereafter register.

4. Rent Commencement Date:

The Rent Commencement Date shall be a day which is from the Lease Commencement Date i.e, August 05, 2021.It has been agreed between the Lessors and Lessee that for the First Nine (9) months from Rent Commencement Date shall be charged 50% of the Rent of the agreed amount.

5. Lock-in Period:

The lock-in period is for an initial 5 (five) Years from the Lease Commencement Date ("**Lock-in Period**"), it being clarified that there shall be no Lock-in Period in any Additional Term. In case the Lessee terminates the Lease Deed during the Lock in Period other than as contained in Clause 18 (b) or should the Lessors decide to terminate the Lease Deed due to breach on the part of the Lessee in accordance with Clause 18 (b), then the Lessee shall be obligated to pay the Rent for the unexpired portion of the Lock-in Period.

6. Renewal of Lease:

On expiry of the Lease Term, the Lessee shall have the sole option to renew the lease of the Demised Premises for an Additional Term(s) on the mutually agreeable terms and conditions by way of execution and registration of a fresh lease deed. The Lessee shall provide written notice conveying its intention of such renewal of the Lease to the Lessors at least 4 (Four) months prior to the expiry of the Lease Term and the Lessee and the Lessors shall execute and register fresh lease deed for the Additional Term. It is hereby clarified that there shall be no Lock-in Period applicable nor shall any additional security deposit be payable by the Lessee for such Additional Terms.

For any extension of the Lease Term beyond 5 years from the Effective Date, the Parties shall agree to such extension on the basis of fresh lease deed only.

7. Rent

a) The Lessee agreed for paying Rent of 50% for the period 9 Months from date of Lease Commencement Date and Rent Commencement Date that is August 05, 2021 for the Demised Premises measuring extent of 20,055 Super Built up area that is Rs. 6,51,787.50/- (Rupees Six Lakhs Fifty One Thousand Seven Hundred Eight Seven and Fifty Paise only) with Lessors which shall be payable in advance on or before 10th (tenth) of the current/applicable month.

b) The Rent for the Demised Premises is Rs.65/- (Rupees Sixty Five only) per square feet of 20,055 Super Built up Area per month **("Rent")** amounting to Rs. 13,03,575/- (Rupees Thirteen Lakhs Three Thousand Five Hundred Seventy Five only) which shall be payable in advance on or before the 10th (tenth) after completing of 9 months by paying 50% of the Rent i.e., May 5th, 2022, after appropriate deductions for income tax at source to the Lessors in proportion to the Super Built Up Area between them. The Rent shall be paid by cheque or wire transfer in favour of the Lessors.

c) The Lessors shall provide the Lessee with dedicated 30 Car Parking Slots shall be provided which shall distribute as 21 (twenty one) in the Basement of the Building, 05 (five) on the Ground Floor of the building and 04 (Four) on the First Floor of the Building along with the Two wheeler Parking is included in the above Car Parking Slots provided in the first floor only.
The Lessee shall pay rent of the Car Parking Slots charged at Rs.3,500/- (Rupees Three Thousand Only) per month per Car Parking Slot which is total amount of Rs.1,05,000/-(Rupees One Lakh Five Thousand Only).

d) The Lessors shall raise their invoices no later than the 5th (Fifth) of every month for which the Rent and car parking rents are due. The invoice will clearly identify the taxes and rates therein.

The distribution of Warm Shell rent and car park rent of each owner is as follows:

SL. NO.	OWNERS DETAILS	AREA in square feet	Rent per Sq Ft	Total	Bank	Bank A/c No	GST Applicable	CP	CP Rent
1	Mr. Sharath Kumar S.N	1000	65	65000	Central Bank Of India	3667469440	Yes	1.5	5250
2	Mr. Murali Mohan S.N,	1000	65	65000	Central Bank Of India	3699252281	Yes	1.5	5250
3	Mr. Manjunath Bijjahalli,	1000	65	65000	HDFC Bank	05231600001021	Yes	1.5	5250
4	Mrs. Padmini Manjunath Bijjahalli	500	65	32500	HDFC Bank	0523930009662	No	0.5	1750
5	Mr. Vikramaditya Bijjahalli	500	65	32500	HDFC Bank	05231000024002	No	1	3500
6	Mrs. Battepati Sumana Reddy,	2600	65	169000	ICICI Bank	631001511692	No	4	14000
7	Mr. Sankalp Singh,	1950	65	126750	HDFC Bank	15451000033282	Yes	3	10500
8	M/S Umiya Holding Private Limited	230	65	14950	Kotak Mahindra Bank	04222080000081	Yes		
9	Mr. N.S. Varun	2818.75	65	183218.75	Kotak Mahindra Bank	142010052682	Yes	4.25	14875
10	Mrs. N.S. Mangala,	2818.75	65	183218.75	Kotak Mahindra Bank	142010057538	Yes	4.25	14875
11	Mr. N.S. Nagaraj	2818.75	65	183218.75	SBI	54001054635	Yes	4.25	14875
12	Mrs. N. Mallika,	2818.75	65	183218.75	SBI	54001052912	Yes	4.25	14875
		20055		1303575					105000

8. Enhancement/Escalation of Rent & Car Park Rent

The Rent above reserved for the Demised Premises shall be subject to enhancement at the rate of 7% (Seven percent) for 2nd and 3rd year (i.e., commencing from the 13th month and 25th month respectively) and There shall be no escalation on 4th year (i.e., from 37 month to 48 month). In the 5th year (i.e. Commencing from the 49 month) rent shall be enhanced at the rate of 15% (Fifteen percent) for every 3 years on the last paid rent. There shall be no escalation on/increase of the Security Deposit (hereinafter defined) applicable whether during the Lease Term or any Additional Term thereafter.

9. Interest Free Refundable Security Deposit:

The Lessee is required to pay to the Lessors an interest free fully refundable security deposit of Rs. 1,30,35,750 (Rupees One Crore Thirty Lakhs Thirty Five Thousand Seven Hundred Fifty only) equivalent to the Rent for a period of 10 months ("**Security Deposit**").

The Security Deposit equivalent to10 months' rent amounting 1,30,35,750 (Rupees One Crore Thirty Lakhs Thirty Five Thousand Seven Hundred Fifty only) has been partially paid as follows:

SL. NO.	OWNERS DETAILS	AREA in square feet	Security Deposit SHARE
1	Mr. Sharath Kumar S.N and	1000	650000
2	Mr. Murali Mohan S.N,	1000	650000
3	Mr. Manjunath Bijjahalli,	1000	650000
4	Mrs. Padmini Manjunath Bijjahalli	500	325000
5	Mr. Vikramaditya Bijjahalli	500	325000
6	Mrs. Battepati Sumana Reddy,	2600	1690000
7	Mr. Sankalp Singh,	1950	1267500
8	M/S Umiya Holding Private Limited	230	149500
9	Mr. N.S. Varun and	2818.75	1832187.5
10	Mrs. N.S. Mangala,	2818.75	1832187.5
11	Mr. N.S. Nagaraj and	2818.75	1832187.5
12	Mrs. N. Mallika,	2818.75	1832187.5

Upon expiry of the Lease Deed or earlier termination of this Lease Deed, the Lessors shall refund the entire Security Deposit to the Lessee simultaneous to the Lessee handing over the vacant and peaceful possession of the Demised Premises (save reasonable wear and tear) to the Lessors. In the event of failure to refund the Security Deposit, the Lessors shall be liable to pay interest @ 12% (Twelve)p.a. till actual payment and the Lessee shall be entitled to retain the possession of the Demised Premises without being liable to pay Rent and be exempt from any liability to the Lessors in any manner. However the Lessee is liable to pay for the maintenance, electricity and chiller charges during this duration.

<u>10. Maintenance Services:</u>

a) UMIYA Services shall be the Maintenance Service Provider and the LESSEE shall enter into a separate maintenance agreement with Umiya Services (“**Maintenance Agreement**”).A detailed ‘Scope of Maintenance Services’ has been provided by Umiya Services which is annexed as **ANNEXURE A** of the Lease Deed.

b) The Maintenance Agreement shall be co-terminus with the Lease Deed.

c) The LESSEE shall pay the Maintenance Charges at the rate of **Rs.8.51/-(Rupees Eight and Fifty one Paise only)plus Applicable Taxes** per square feet of Super Built-up Area per month of the Demised Premises. (“**Maintenance Charges**”)Payments for a part of the month, if applicable, will be paid on pro rata basis;

d) If the Lessee appoints a Vendor to carry out the fit outs, the Vendor shall pay a deposit of **Rs.2,00,000/- (Rupees Two Lakh only)** to Umiya Services as a security deposit against damages. The Lessors will be notified by the Vendor on completion of the fit out activity. The security deposit shall be refunded in full if there are no damages caused as a part of the fit out activity which is attributed to the Vendor. If any damages have been caused, the Vendor will make good the damage or equivalent amount deducted and the balance amount will be refunded to the Vendor.

e) The LESSORS shall provide BESCOM/Self Generated or Renewable Power@ 1.0 KVA for every 100 Square Feet of the Demised Premises including air conditioning load.

f) The electricity and maintenance commencement date would be the Rent Commencement Date;

g) The LESSORS shall provide 100% power backup for the Demised Premises 24 hours a day, all the days of the week throughout the year.

h) The LESSEE shall pay the consumption charges as per the readings on the sub-meters installed by the LESSORS in respect of the Demised Premises. The LESSEE shall be responsible for the payment of the demand and consumption charges payable periodically as per BESCOM`s tariff to the Maintenance Service Provider from the handover date.

i) Electricity, BESCOM/SELF Generated or Renewable Power consumption will be charged as per existing BESCOM tariffs. DG Consumption Charges (“as defined below”) **@ Rs 29 per unit** plus applicable taxes will be paid by the LESSEE. Any transmission and distribution losses (being the difference between the reading showing in the meters and the actual units consumed by the LESSEE as per the sub-meters provided in the Demised Premises). It is hereby clarified that the transmission and distribution losses shall be paid on a pro-rata basis by all the occupants of the Building. The DG consumption charges will be revised based the fuel price changes more than 10% from current prize of Rs 95.50 (Rupees Ninety five and fifty paisa) per litre.

Electricity consumption will be charged as per the separate Energy Meters installed on each floor occupied by the LESSEE as per the billings raised by BESCOM/Self-Generated or Renewable Power. Based on Electricity consumption pattern by the LESSEE, any additional 2 or 3 MMD deposits sought by BESCOM, has to be paid by the LESSEE immediately on their Demand. There shall not be any mark up in the tariff or electricity bills by the LESSORS on the bills received from BESCOM. LESSEE shall be entitled to use the facility on 24x7 basis without any additional cost but the payment of actual consumption metered. In case the LESSORS avails of discounted EB tariff (statutory) applicable to IT companies or otherwise, the same shall be passed onto the LESSEE. The 2/3 MMD paid by the LESSEE shall be refunded by the LESSORS to the LESSEE -once received from the BESCOM.

The DG consumption charges calculated based on the formula set out below (the "**DG Consumption Charges**"), which is currently Rupees Rs 29/- per unit, as measured on exclusive meters provided by the LESSORS for each floor of the Premises.

(A/B) * C= D, wherein:

A shall mean the increased or decreased price of diesel, per litre;
B shall mean the existing diesel price, per litre;
C shall mean the existing per unit rate of backup power consumption by the Lessee; and
D shall mean the increased or decreased per unit rate of the DG Consumption Charges.

At present, the DG Consumption Charges of Rs 29/- per unit are computed based on the prevailing diesel price of **INR 95.50** per litre, and the DG Consumption Charges will be proportionately increased or decreased in case of variation in the diesel price, which shall be determined as per the formula set out above.

The increase or decrease in the diesel charges can be affected if there is a significant change of more than 10% of the prevailing prices.

j) LESSEE has to pay its pro-rata share of the common area electricity and DG consumption charges which will be metered through a common meter & will be charged on pro-rata basis. The LESSORS confirms that that the DG power utilization in common areas is only limited to periods when power supply from BESCOM is disrupted. The Lessors confirms that common area electricity is not used for any construction purposes and developmental activities which will be carried out either by the Lessors or other occupiers of the Project.

k) The LESSEE shall be provided with chilled water upto the AHU`s in the Demised Premises during the normal office hours between 8.00 AM to 8.00 PM from Monday to Friday at the BESCOM rate per unit for British Thermal Unit("**BTU**") on BESCOM/Self Generated or Renewable Power and **Rs. 29/- per unit** plus applicable taxes on DG Power and chiller charges. If the LESSEE requires chilled water supply beyond the timing fixed above, then in such cases, the LESSEE shall pay charges on Current rates+20% basis. HVAC / Chiller consumption will be metered using BTU Meters for each tenant on each floor; subject to proportionate variation based on actual change in BESCOM Electricity charges/DG Power Back Up consumption charges.

l) The LESSORS shall take necessary measures and install appropriate continuity processes to ensure that the BESCOM power once supplied is not disrupted at the stage of supply to the Demised Premises. If the disruption in supply of power to the LESSEE is on account of such default by the Lessor, the LESSEE will not be required to bear the additional costs of backup power and the same will be borne by the LESSOR.

m) In case the LESSEE requires additional power (over and above what is provided above mentioned),the Maintenance Service Provider would facilitate the process with the local power authority and all related costs for the same shall be paid by the LESSEE.

n) For the computation of Rent and Maintenance Charges, the Super Built up Area shall not include the Car Parking Slots.

o) a) Maintenance Charges shall be payable monthly on or before the 7thday of each month for the current /applicable month for which it is due upon the issuance of the invoice on the1st day of every month.

b) Electricity (BESCOM/Self Generated or Renewable Power) and chiller charges to be paid on or before the 10th day of every month for the previous month upon submission of electricity bill/consumption details.

p) The Maintenance Charges shall be subject to escalation by 5% (five percent) on 1st of April every year. The first enhancement of this Lease deed shall be on 1st April 2022. .

q) The LESSEE agrees to pay adhoc enhancement in the Maintenance Charges due to any actual increase in the cost subject to the LESSORS providing documentation substantiating such increase and the same shall be made applicable to all tenants in the Building. Any revision to the Maintenance Charge will be effective only if a prior written communication of an anticipated increase with detailed reasoning and supporting documents are provided to the Lessee and such revision shall be based on the actual Maintenance costs incurred in providing Maintenance Services. In the event of any escalation in the Maintenance Charges beyond 5% (five percent) every year and if the Lessee, in its sole opinion, feels that the Maintenance Charges reasonably exceed the prevalent market rates, the Lessors shall make the necessary books and records available for inspection by the Lessee and/or its agents when necessary.

r) The LESSEE shall during the entire Lease Term attend to all routine day to-day maintenance of the Demised Premises at its own cost. The LESSORS shall, in accordance with the Maintenance Agreement, maintain the area within the compound and the facilities and amenities provided therein ("**Common Area**") at its own cost and shall attend to all major structural repairs of the Demised Premises at their cost and ensure the replacement of the worn out/damaged parts due to their normal use, unless the damage is caused due to the negligence of the LESSEE.

s) If the LESSEE is in default in making the payments towards the Maintenance Charges, Electricity Charges and BTU Charges to Maintenance Service Provider, then the LESSEE shall be liable to pay a penalty of 12% interest per annum on the amount due.

t) The LESSEE has paid to the Maintenance Service Provider one (1) month`s Maintenance, Electrical and BTU Charges which amounts to a total of **Rs. 5,00,000/- (Rupees Five Lakhs Only**) as a deposit("**Maintenance Deposit**") which will cover costs towards maintenance, electricity and BTU charges for one month to the Maintenance Provider upon execution of the Maintenance Agreement. This Maintenance Deposit shall be an interest free refundable deposit and shall be refunded by the Maintenance Service Provider in the event of expiry or earlier termination of the Lease Deed and in accordance with the terms of the Maintenance Agreement. The Maintenance Deposit paid to the Maintenance Service Provider shall be returned forthwith by the Maintenance Service Provider to the LESSEE (less any permissible deductions as agreed to in writing by the Intending LESSEE), simultaneously with the handing over of the vacant possession of the Demised Premises by the LESSEE to the LESSOR.

The LESSEE shall follow the rules and regulations set by the Maintenance Service Provider in the Building Bye-Laws as in the Maintenance Agreement.

11. Fittings and Fixtures in the Demised Premises and Maintenance:

a) The Lessors shall provide a warm shell.

b) The Lessee shall use the Demised Premises carefully and diligently and shall not cause any damage to the Demised Premises and amenities provided therein. However, normal wear and tear is excepted.

c) The Lessee shall be entitled to carry out additional fittings and fixtures in the Demised Premises at its cost, which shall include electrical and communication appliances and any other equipment/fittings, cubicles, partitions etc., required for its activities. Such improvements or alterations shall conform to the applicable local building regulations ensuring that no damage is caused to the structure of the building. Upon the expiration or termination of this Lease, the Lessee shall remove all the improvements. The Lessee shall ensure that no damages are caused to the common areas during this activity. However, normal wear and tear is excepted.

d) Any permissions or authorizations required to be obtained such as CEIG approval, BBMP, FIRE etc. for Lessee`s improvements shall be Lessee`s sole responsibility, provided that Lessors will, at Lessee`s cost, provide any assistance or no-objection required for the procurement of such permission or authorization. The certificates that are procured by the Lessee shall be shared with the Maintenance Service Provider for their records.

e) The Lessee shall bear the damage and repair cost, if any damage is caused while removing and replacing the fit outs in the Demised Premises by the Lessee. If the Lessee fails to bear this cost then, this cost shall be deducted by the Lessors from the refundable Security Deposit.

12. TAXES AND LEVIES

a) The Lessors shall bear and pay regularly and punctually, all the past, present and future taxes, rents, rates, cess, dues, duties and impositions, taxes, statutory dues in regard to the Demised Premises payable to any authority, including but not limited to land tax, building tax, corporation and house tax, local government charges pertaining to the Demised Premises, and the Lessee shall not have any liability whatsoever in this regard. In the event of the Lessors failing to comply with its obligation under this Clause, and there being any demand outstanding, or there being any threat of recovery from any statutory authority with regard to any outstanding amounts to them, or there being any demands raised on the Lessee by the concerned authorities, the Lessee shall communicate to the Lessors about such demand within a reasonable period of receipt of such notice by the Lessee. Upon receipt of such communication from the Lessee, the Lessors shall pay the amounts so demanded within the stipulated due date, failing which the Lessee shall pay the same to the concerned authority and the same shall be reimbursed to the Lessee by the Lessors up on submission of payment receipt or shall be recovered by the Lessee by way of deduction / adjustment in / from the Rent payable by the Lessee to the Lessors.

b) The Lessee shall bear and pay all applicable service tax. The Lessors shall remit the applicable goods and services tax ("**GST**") to the government as required under law, and produce proof of such payment to the Lessee from time to time. The Lessors shall share with the Lessee the service tax registration details. In the event the Lessee receives any notice from any authorities requiring payment of any taxes or any other outgoings, the Lessee shall forward the same to the Lessors as soon as possible. In the event of the Lessors not making any such required payment, the Lessee shall, pursuant to due notice to the Lessors and mutual discussions in this regard, be entitled to make payment of the same and shall thereupon be entitled to deduct the same from the Rent and other charges payable under the terms of this Lease Deed. The Lessors shall indemnify the Lessee for any and all losses incurred on account of demand/notices from any government authorities for non-payment of service tax and other taxes, cess, impositions and statutory dues during the Lease Term. This liability of the Lessors shall continue to hold good even after termination of this Lease Deed.

c) All taxes made applicable on Rent with respect to the Demised Premises for the tenure of the Lease shall be payable by the Lessee.

d) All current taxes and any new taxes that may be introduced by the statutory authorities from time to time, which is applicable on Rent with respect to the Demised Premises for the tenure of the lease shall be payable by the Lessee.

13. USE OF THE DEMISED PREMISES

a). The Lessee shall have an exclusive and lawful use and occupation of the Demised Premises during the Lease Term. The Lessee shall have unlimited access to the Demised Premises 24 hours a day, 7 days a week and 365 days a year, throughout the Lease Term and shall use the Demised Premises for the purpose of its business purpose as may be permissible in law and shall not carry out any illegal activity. Further the Lessee shall not store any hazardous, contraband or inflammable articles in the Demised Premises other than such articles required by the Lessee for its business purpose merely subsequent with the permission/licenses from the Competent Authority.

14. THE LESSORS' REPRESENTATIONS, WARRANTIES AND COVENANTS

i. The Lessors are the absolute owners of and have clear title to the Demised Premises and the right and authority to grant on Lease the Demised Premises in favour of the Lessee on the terms contained herein for commercial use thereof by the Lessee and the Lessors have obtained all the necessary statutory permissions, approvals, sanctions and clearance from the concerned authorities, and the Lessors have met all building code and occupancy requirements for the Lessee`s use. The Lessors shall indemnify and keep the Lessee indemnified in respect to the above.

ii. The Demised Premises is free from any pending litigation, third party claims, acquisition proceedings and any encumbrances, whatsoever and the Lessors have not entered into any arrangement and/or agreement with any third person/persons for providing rights, use, occupation, access, etc., of the Demised Premises to which the Lessee is entitled to under this Lease Deed.

iii. The Lessors have obtained requisite municipal permissions, sanctions and approvals from all concerned authorities for use of the Demised Premises for the commercial business purpose to suit the business activities of the Lessee as permitted under laws.

iv. The Building is constructed strictly in accordance with the building plan, sanctioned and approved by the concerned authorities. The Lessors have not committed any breach of any statutory/municipal regulations or contractual obligations or of any applicable laws with respect to the Demised Premises.

v. The Lessors have obtained all the required permission for utilities in the Demised Premises and all required clearance/approvals from the Central/State/local authorities for the use of the Demised Premises by the Lessee.

vi. The Lessors shall co-operate with the Lessee by way of issuing NOC`s providing any documents in connection with the Demised Premises to enable the Lessee to get the Demised Premises registered under the provisions of the various laws as applicable.

vii. The Lessee paying the Rent and other charges payable hereunder, if any, regularly and duly observing and performing the terms and conditions herewith, shall be entitled for a quiet and peaceful enjoyment and possession of the Demised Premises during the Lease tenure, without any obstructions interruption or disturbance from the Lessors or any person claiming through or in trust for the Lessors or otherwise.

viii. The Lessors shall be responsible and liable to comply with all applicable laws for the possession, installation and use of the furniture, fixtures and facilities in the Demised Premises.

ix. The Lessors shall ensure that the Lessee at all times during the currency of this Lease enjoys exclusive and peaceful possession of the Demised Premises. They shall insure and keep in full force the insurances relating to the Demised Premises, to full reinstatement value, with reputed insurance companies against all commercial general liability and all insurable risks to the Demised Premises, including without limitation, damage to or destruction of the Demised Premises due to natural disasters, acts of God, fires, acts of terrorism, civil commotion and aerial and other accidents, any other Force Majeure Event, etc., during the Lease Term and any Additional Term. All damage shall be repaired by the Lessors and the Demised Premises reinstated at the cost of the Lessors as soon as reasonably possible, the Lessors utilising all available insurance proceeds for such purpose. The Lessors shall furnish the Lessee with a certificate of insurance showing coverage in place with at least 30 (thirty) days' prior written notice to the Lessee if the policies are to be cancelled, renewed or materially altered so as to affect the coverage of the policies. The cost for the same, which shall be based on market rates will form part of the maintenance charge payable by the Lessee as per Clause 10.

x. The Lessors shall not object to the Lessee engaging its own security personnel in respect of the Demised Premises during the Lease Term who shall be based in the Demised Premises.

xi. The Lessors shall accommodate any requests by lessee for access to the premises for getting the premises ready by installation of UPS, getting internet connectivity etc.

xii. The Lessors does not have any liability for any taxes, or any interest or penalty in respect of the Demised Premises, of any nature that may be assessed against the Lessee or become a lien against the Demised Premises. All property taxes, electricity, water charges and all other outgoings in respect of the Demised Premises prior to the handover of the Demised Premises have been properly remitted by the Lessors and there are no arrears, outstanding dues etc. as on the Lease Commencement Date.

xiii. The Lessors shall observe and perform all the terms and necessary conditions, agreements, covenants and provisions on which the Lessee occupies the Demised Premises and shall not do, omit or suffer to be done anything whereby the Lessee's right to occupy the Demised Premises is hindered, forfeited or affected in any prejudicial manner.

xiv. During the Lease Term, the Lessors shall ensure that entrance is provided to the Lessee for the Demised Premises to ingress and egress without causing hindrance or obstructing the free movement. The entrance and passage so provided shall be common and will be shared with other tenants of the Building and to be used by the Lessee, its employees, visitors, agents and contractors.

xv. Except for the period of subsistence of a Force Majeure Event (hereinafter defined), the Lessors shall at all times, from the Lease Commencement Date to the expiry of the Lease Term or the prior determination thereof, ensure that the Lessee enjoys quiet, unhindered and peaceful possession of the Demised Premises according to the terms of this Lease Deed which includes the provision of all amenities such as power (1.0 KVA of power for every 100 square feet of the Demised Premises including air conditioning load) and water supply, 100% backup power, lifts, escalators, lighting, security, air conditioning etc. at all times. The Lessors shall at its own cost attend to all major structural repairs of within the Demised Premises within 15 (fifteen) days of such defect / damage being notified by the Lessee to the Lessors in writing and at their cost and ensure the replacement of the defect/damaged parts, unless the damage is caused due to the negligence of the Lessee. In case the Lessors fails to arrange for the repairs within the period of 15 (fifteen) days thereof, the Lessee shall be at liberty to carry out the same at its cost and recover the entire cost from the Lessors, by deducting any costs incurred for such repairs from future Rent payable by the Lessee to the Lessors from time to time subject to receipt of bills incurred by them.

xvi. The non-fulfillment of any of the above representations and warranties shall be deemed as breach of this Lease Deed by the Lessors, unless (i) the Lessee is solely responsible for such breach; or (ii) such breach is caused by a Force Majeure Event.

15. THE LESSEE`S COVENANTS

The Lessee hereby covenants with the Lessors as follows:

a) To observe and perform all the terms and conditions, covenants and provisions of the Lease Deed to be observed and performed by the Lessee;

b) To regularly pay Rent at the time and in the manner aforesaid; subject to deduction of income tax at source, as applicable under the Income Tax Act, 1961, within the time stipulated herein and issue appropriate TDS Certificate to the Lessors for tax deducted at source;

c) To use the Demised Premises only for business and allied purposes and not for any other illegal purpose;

d) On termination or expiry of the Lease the Lessee shall be required to reinstate the Demised Premises to the original warm shell condition. The Lessee shall, at the expiry or termination of the Lease Deed, have the right to remove any and all Lessee’s improvements from the Demised Premises. However, the Lessee shall be liable to pay Lessors for any damages caused to the Demised Premises while removing their improvements from the

Demised Premises, as mutually agreed between the Parties. The Lessors shall not be liable to reimburse the cost of the Lessee`s property which remains in the Demised Premises.

e) Not to do or suffer to be done anything whereby the Lessors‘s rights in respect of Demised Premises or any part thereof are prejudiced or adversely affected.

f) To permit the Lessors, its representatives and/or agents after receipt of twenty four (24) hours prior notice, to enter into the Demised Premises during working hours for the purpose of inspection of the Demised Premises and to carry out any repairs to the Demised Premises.

g) The Lessee shall keep the passages, common areas free from any debris, construction materials, security desks, office equipment, or anything that hinders free movement.

h) The Lessee shall register this Lease Deed with the Jurisdictional sub-registrar's office and shall pay stamp duty, registration charges and any other charges for the purpose of registering this Lease Deed.

16. MUTUAL INDEMNITY

a) The Lessors shall indemnify, defend and hold the Lessee harmless during Lease Term against any demands, claims, actions or proceedings that may be initiated against the Lessee or any losses, claims, charges, costs, expenses, damages suffered or incurred by the Lessee or any judgments or orders passed against the Lessee due to (i) any defect in title of Lessors to the Demised Premises; (ii) any breach of terms of the Lease; (iii) any misrepresentation or breach of any of the representations and warranties of the Lessors; (iv) any breach or non-fulfilment of any condition, covenant or undertaking of the Lessors; and (v) non-compliance with permissions/clearances/ taxes and other statutory dues required for occupation of the Demised Premises or applicable laws in respect of the Demised Premises, resulting in Lessee being prevented from using the Demised Premises.

b) Lessors shall indemnify, defend and hold the Lessee harmless during the Lease Term against any demands, claims, actions or proceedings that may be initiated against the Lessee, and/ or in respect of the Demised Premises.

c) Lessee shall indemnify, defend and hold the Lessors harmless during Lease Term against any claims, damages, charges, expenses, costs, losses or injuries arising out of or relating to: (i) any breach of terms of the Lease; and (ii) any act or omission of the Lessee which results in violation of its legal, statutory, regulatory or other duty or obligation in connection with the use of Demised Premises.

d) Save and except any liquidated damages which may be agreed between the Parties in the future, neither Party will be liable to the other for any incidental, consequential, penal, exemplary or the like damages, or any direct or indirect loss of profits or business or opportunity or any action in tort even if advised of the possibility of such claims.

17. Assignment/Subsequent Transfer

The Lessee may as a result of an acquisition; reorganization; definitive scheme, arrangement, undertaking or agreement with respect to any of its assets or liabilities; merger; de-merger or consolidation assign / novate this Lease to any third party with the prior approval of the Lessors at any time, which approval shall not be unreasonably delayed or withheld by the Lessors. In case of such assignment / novation, the third party shall be bound by all the terms of the Lease Deed and the Lessee shall be released from all obligations under the lease.

18. TERMINATION

(a) **Termination by the Lessee**. The Lessee shall not be entitled to terminate this Lease Deed without assigning any reason during the Lock-in Period. It is clarified that the Parties will have no right to terminate this Lease Deed during the Lock-in Period except in accordance with Clause 18 (b).

(b) **Termination by either Party**. Notwithstanding the Lock In-Period, either Party shall be entitled to terminate this Lease Deed at time during Lease Term in case of breach by the other Party of any terms and conditions, covenants and/or representations and warranties of this Lease Deed; provided that:

(i) such termination shall not be effective unless the non-breaching Party has given a written notice of 30 (thirty) days to the breaching Party setting out the details of such breach to cure the breach and the breaching Party not having cured or rectified such breach.; and

(ii) Where such breach relates to non-payment of Rent and/or Maintenance Charges payable in respect of the Demised Premises, the Lessors will be entitled to forth with terminate the Lease Deed only **(A)** in the event that the Lessee has failed to pay the agreed Rent and Maintenance Charges for two or more consecutive months; and **(B)** after providing 30 days' notice in writing to the Lessee specifying such breach and asking that it be remedied or cured by the Lessee within such 30 (thirty) days' notice period.

Upon expiry or earlier termination of this Lease Deed, the Security Deposit and all other deposits paid by the Lessee hereunder will be liable to be refunded immediately to the Lessee.

Where any termination by the Lessee is not for the reasons mentioned in Clause 18(b) above, the Lessee shall be obligated to pay the Rent for the unexpired portion of the Lock-in Period or have an amount equivalent to such Rent for the unexpired portion of the Lock-in Period adjusted from the Security Deposit and any balance amount, if any, would be payable by the Lessors to the Lessee towards refund of Security Deposit.

Upon expiry or termination of the Lease Deed simultaneous with the refund of Security Deposit, the Lessee will vacate the Demised Premises and hand over vacant possession of the Demised Premises to the Lessors subject to the Lessors and the Maintenance Service Provider having refunded the Security Deposit and the Maintenance Deposit and any other deposits paid by the Lessee hereunder to the Lessee in accordance with this Lease Deed.

19. Applicability of TDS

The Lessee shall deduct the TDS only on Rent and Maintenance Charges. TDS is currently not applicable on Electricity and BTU Charges.

20. Force Majeure:

Neither Party shall be liable for any breach resulting from:

(a) acts of God (including floods, earthquakes, storms and other natural disasters), war, insurrection or riots, epidemic or pandemic~~,~~ government action (including district, state and nation-wide directives or orders, court orders), prohibitory orders of any regulatory authority implementing lockdown resulting in any complete closure of Lessee’s business or Lessee’s inability to access and use the Demised Premises for its business activities; or

(b) terrorist acts or attacks, lightning, earthquake, fire, war, civil war, insurrection, riots, bandh, boycotts, or other violence not attributable to either Party; which results in damage to or destruction of the Demised Premises and prevents the Lessee from accessing and using the Demised Premises or the Lessors from performing its obligations under this Lease Deed;

(c) Each of such events to be referred to as (“Force Majeure Event”). Where the Demised Premises is unable to be accessed physically or equipment/servers remotely or used by the Lessee for a period in excess of 60 (Sixty) days due to destruction/damage or government restrictions, then the Lessee may, notwithstanding the Lock-in Period and without prejudice to its rights under any provisions of this Lease Deed, terminate this Lease Deed with 30 (Thirty) days’ notice to the Lessors in writing and upon expiry of the said 30 (Thirty) days, this Lease Deed shall stand terminated immediately subject to Clause 9 and the refund of the Security Deposit and any other deposit by the Lessors (including the Maintenance Deposit by the Maintenance Service provider) to the Lessee.

Notwithstanding the above, in case of destruction or damage to the Demised Premises, the Lessee requires the Lessors to restore the Demised Premises the Lessors shall endeavor to the satisfaction of the Lessee, to restore and reinstate the Demised Premises within the shortest possible time taking into consideration the nature of repairs required to be done, during which time the rent and other charges pertaining to use of Demised Premises shall not be payable until the

Demised Premises is made ready for use and occupation by the Lessee. In the event the Demised Premises or any part thereof has been rendered unfit for use during such period, the Lessee shall be at liberty to request the Lessors to provide alternative premises to the sole satisfaction of the Lessee.

21. Dispute Resolution

In the event of any dispute or difference arising between the Lessors and the Lessee hereto concerning or relating to the interruption of these presents or the interpretation of effect of any provisions thereof or relating to the liability or obligation on the part of any of the parties hereto, the same shall be referred to arbitration in accordance with the provisions of the Arbitration and Conciliation Act, 1996 (or any statutory modifications or re-enactments thereof for the time being in force) before an arbitral tribunal of three arbitrators where the Lessors (acting jointly) and the Lessee will each be entitled to appoint one arbitrator and the two arbitrators so appointed will nominate the presiding third arbitrator. The award passed by the majority of arbitrators shall be binding on the Parties. The seat of arbitration will be Bangalore and the arbitration proceedings conducted in English. The arbitral panel will award costs of the arbitration.

Subject to the preceding paragraph, the courts in Bangalore shall have exclusive jurisdiction over any dispute, differences or claims arising out of this Lease Deed.

22. Governing Law

This Lease Deed and any other document connected to this Lease Deed between the Parties shall be governed and construed in accordance with the laws of the Republic of India.

23. Entire Deed

This Lease Deed shall constitute the entire agreement and understanding with respect to the subject matter hereof and shall supersede all prior discussions, representations or agreements between the Parties.

24. AMENDMENTS AND WAIVERS

No modification, amendment or waiver of any of the provisions of this Lease Deed shall be effective unless made in writing specifically referring to this Lease Deed and duly signed by each of the Parties.

25. Notices:

Any notice to be issued either to the Lessee or to the Lessors shall be addressed and sent to their respective addresses mentioned Lease Deed by R.P.A.D or by certificate of posting or by personal hand delivery to the addressees of the Parties shown in this Lease Deed or by electronic mail to the following email address:

LESSORS:

1) **Mr. Sharath Kumar S.N and**
Mr. Murali Mohan S.N,
residing at No. 2, 2nd Cross,
Shankarmutt Road,
Shankarapuram,
Bangalore - 560 004.

2) **Mr. Manjunath Bijjahalli**,
Mrs. Padmini Manjunath Bijjahalli and
Mr. Vikramaditya Bijjahalli,
residing at No. 62 Shankarmutt Road,
Shankarapuram,
Bangalore – 560 004.

3) **Mrs. Battepati Sumana Reddy**,
residing at Sai Sadan Apartments,
Flat 4C. Saraswath Nagar,
Dargamitta, Nellore – 524 003.
Andhra Pradesh.

4) **Mr. Sankalp Singh,**
residing at Singh Nursing Home,
Birla Road, Kolgawan.
Satna, Madhya Pradesh.
Represented by his Power of Attorney Holder,
Mr. Shivesh Gaurav.

5) M/S Umiya Holding Private Limited
residing at No.29/3,
H.M Strafford, 2nd Floor,
7thCross,VasanthNagar,
Bangalore-560 052
Represented by its Authorized signatory
Mr. Amrendra Singh

6) **Mr. N.S. Varun and**
Mrs. N.S. Mangala,
residing at #417,
Middle School Road,
V.V. Purama,
Bangalore – 560 004.

7) **Mr. N.S. Nagaraj and**
Mrs. N. Mallika,
residing at Bhaskar Nilaya,
#8, 9th Cross,
Kumara Park West.
Bangalore – 560 020.

LESSEE:

M/s. Cambium Networks Private Limited, its registered office at 5th Floor, Quadrant 1, Umiya Business Bay Tower 2, Outer Ring Road, Kadubeesanahalli, Varthur Hobli Road, Bangalore East Taluk, Bangalore 560037

Or

To such other address as either Party may, for this purpose have intimated to the other in writing.

SCHEDULE 'A'

(Description of the Large Property) -

All that commercially converted lands having Khata No.172/2 issued by the Bruhat Bangalore Mahanagara Palike (BBMP), comprising of lands in Survey No.10/1A, measuring 0.247 Guntas(zero point two four seven Guntas), Survey No.10/1B, measuring 1 (one) Acre and 3.745 Guntas(three point seven four five Guntas) and Survey No.10/2, measuring 13.05 Guntas(thirteen point zero five Guntas), Survey No. 10/3, Measuring 1 Acre 0.500 Guntas and Survey No.11, measuring 18.261Guntas(eighteen point two six one Guntas)in all measuring 2 (two) Acres 35.80 Guntas(thirty five point eight), with 10.4572 (ten point four five seven two Guntas) of undivided share in the internal roads and common entrance in the Cessna Business Park (out of 1 Acre 27.32 Guntas), all of them situated at Kadubeesanahalli Village, Varthur Hobli, Bangalore East Taluk and bounded as under:-

East: Internal Road;

West: Lands in Survey No.10/1B

North: Lands in Survey No.10/1A, 10/2 and 11

South: Cessna Business Park

S C H E D U L E - 'B'

(Description of part of the property sold to Mr. Chatrabhuj Bassarmal Pardhanani)

All that commercially converted lands having Khata No.172/2/1, Kadubeesanahalli, Bangalore issued by the Bruhat Bangalore Mahanagara Palike (BBMP) measuring 56,200 (fifty six thousand and two hundred)Sq. Ft of this property to Mr. Chatrabhuj Bassarmal Pardhanani along with 5075Sq. Ft. undivided share in the internal roads and common entrance in the Cessna Business Park, Comprising of Lands in Survey No. 10/1B measuring 22188 Sq. Ft., Survey No. 10/3 measuring 28,272 Sq. Ft., Survey No. 11 measuring 5760 Sq. Ft. along with 5075 Sq. Ft. undivided share in the internal roads and common entrance in the Cessna Business Park situated at Kadubeesanahalli Varthur Hobli Bangalore East Taluk and bounded as under

East : Internal Road;

West: Lands in Survey No.10/1A

North: Remaining Land of company bearing Khatha No. 172/2

South: Cessna Business Park

SCHEDULE 'C'

(Description of the balance portion of property taken up for development)

All that piece and parcel of commercially converted land bearing Survey Nos. 10/1A, 10/3, 10/1B,10/2 measuring in all about 69,906 (sixty nine thousand nine hundred and six) square feet along with 6,313 (six thousand three hundred and thirteen) square feet and Survey No.11 measuring 76,219 (seventy six thousand two hundred and nineteen) square feet undivided share in the internal roads and common entrance in the Cessna Business Park, Comprising of Lands in situated at Kadubeesanahalli Varthur Hobli Bangalore East Taluk

East:	Internal Road;
West:	Lands in Survey No.10/1B
North:	Lands in Survey No.10/1A, 10/2 and 11 (Business Bay –I);
South:	Property belonging to Mr. Chatrabhuj Bassarmal Pardhanani

SCHEDULE 'D'

(DEMISED PREMISES)

ALL THAT PIECE AND PARCEL of the building admeasuring 14,726 (fourteen thousand seven hundred twenty six) square feet of carpet area corresponding to 20,055 (twenty thousand fifty five) square feet of super built-up area on the 5th (fifth) Floor, quadrant 2(two) and 4(four) of the Building Umiya Business Bay – Tower 2, comprising of 8 (eight) levels (2nd to 9th Floors) of office space along with 30 (thirty) Car Parking Slots within Cessna Business Park situated on Marathahalli - Sarjapur Outer Ring Road, Bangalore East Taluk 560 037 located in the Schedule C Property.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE EXECUTED THIS DEED OF LEASE AT BANGALORE ON THE DAY AND YEAR FIRST ABOVE WRITTEN.

LESSORS

1.	Mr. Sharath Kumar S.N. and Mr. Murali Mohan S.N.	/s/ Sharath Kumar S.N. /s/ Murali Mohan S.N.
2.	Mr. Manjunath Bijjahalli, Mrs. Padmini Manjunath Bijjahalli and Mr. Vikramaditya Bijjahalli.	/s/ Manjunath Bijjahalli /s/ Padmini Manjunath Bijjahalli /s/ Vikramadditya Bijjahalli
3.	Mrs. Battepati Sumana Reddy.	/s/ Amrendra Singh
4.	Mr. Sankalp Singh.	/s/ Shivesh Gaurav

Represented by his Power of Attorney Holder,
Mr. Shivesh Gaurav

5. M/S Umiya Holding Private Limited /s/ AMRENDRA SINGH
Authorized SignatoryMr. Amrendra Singh

6. Mr. N.S. Varun, and /s/ N.S. VARUN
Mrs. N.S. Mangala. /s/ N.S. MANGALA

7. Mr. N.S. Nagaraj and /s/ N.S. NAGARAJ
Mrs. N. Mallika. /s/ N. MALLIKA

SIGNED SEALED AND DELIVERED by and on behalf of

Cambium Networks Private Limited

the **LESSEE** above named represented by its Authorised Signatory,
Mr. Biju Kunjukunju - Vice President – India Engineering Operations /s/ BIJU KUNJUKUNJU

in the presence of:

WITNESSES:

1.

2.

Annexure A

Scope of work for Maintenance Services (by the Service Provider / Developer)

Sl.No	Description
1	**Facility Management**
	Charges towards providing Professional Management Services by deputing qualified and experienced to manage the common area of the entire facility
	1.Facility Manager
	2.External Building Security
	3. External Façade & Maintenance
	4.Road within the compound housing “the Premises “ and the road up to the entrance security kiosk
2	**Engineering Services (For Common Area)**
	Charges for professional operation and maintenance services by deputing technically qualifies and experienced
	1.Electrical Supervisor & Technicians
	2.A/C technicians
	3. DG operators
	4. Plumber
	5. STP Operations
	For operating and maintenance of all HT/LT electrical installations, DG sets, A/C units, Fire Alarm and communication systems etc
3.	**Common area House – Keeping Service**
	Charges for rendering professional house – keeping services by deputing experienced House Keeping Supervisors and Staff for cleaning and maintenance of the common area and outside the premises
	Common area includes:
	Staircases, Lifts, Lift Lobbies, Service Lobbies, Ducts, DGs, Electrical Room, Pump room, OHT and UG sumps
4	**Toilets Maintenance:**
	Toilets will be maintained by Lessee within the office space
5	**Maintenance of AHU & Electrical room (within the office floor)**
	Maintenance of AHU & Electrical room
6	**Pest & Rodent Control Service**
	Charges towards carrying out pest and rodent control treatment for common areas.
7	**Landscaping Services**
	Charges towards deployment of gardener for maintaining the landscape area
8	**AMC Charges**
	1.DG
	2.A/C Chillers and AHU
	3.Transformers
	4.Electrical Panels
	5.Security System (in the common area)
	6.Lifts
	7.HSD Yard
	8.Pumps
9	Power Charges of common areas of the building proportionate on the super built up area leased by the tenant shall be included in this scope of maintenance

FIRST AMENDMENT TO LEASE

I. PARTIES AND DATE.

This First Amendment to Lease Amendment dated , by and between SILICON VALLEY CENTER OFFICE LLC, a Delaware limited liability company (Landlord), and CAMBIUM NETWORKS, INC., a Delaware corporation, Tenant

II. RECITALS.

Landlord and Tenant entered into an office space lease dated December 4, 2017 Lease space consisting of 8,825 Premises known as Suite No. 220 in the building located at 2590 N. First Street, San Jose Building

Landlord and Tenant each desire to modify the Lease to extend the Lease Term, adjust the Basic Rent, and make such other modifications as are set forth in III. MODIFICATIONS next below.

III. MODIFICATIONS.

A. Basic Lease Provisions. The Basic Lease Provisions are hereby amended as follows:

1. Item 5 is hereby deleted in its entirety and the following substituted in lieu thereof:

5. Lease Term: The Term of this Lease shall expire at 11:59 p.m. on February 28, 2023.

2. Effective as of March 1, 2022, Item 6 shall be amended by adding the following:

Months of Term or Period	Monthly Rate Per Rentable Square Foot	Monthly Basic Rent
3/1/22 to 2/28/23	$3.50	$30,887.50

B. Security Deposit. No additional security deposit shall be required in connection with this Amendment.

C. Condition of the Premises. Tenant acknowledges that it is currently occupying the Premises and that it is satisfied with the condition thereof. Tenant waives any right or claim against Landlord arising out of the condition of the Premises.

D. SDN List. Tenant hereby represents and warrants that neither Tenant nor any officer, director, employee, partner, member or other principal of Tenant (collectively, "Tenant Parties") is listed as a Specially Designated National and Blocked Person ("SDN") on the list of such persons and entities issued by the U.S. Treasury Office of Foreign Assets Control (OFAC). In the event Tenant or any Tenant Party is or becomes listed as an SDN, Tenant shall be deemed in breach of the Lease and Landlord shall have the right to terminate the Lease immediately upon written notice to Tenant.

IV. GENERAL.

A. Effect of Amendments. The Lease shall remain in full force and effect except to the extent that it is modified by this Amendment.

B. Entire Agreement. This Amendment embodies the entire understanding between Landlord and Tenant with respect to the modifications set forth in III. MODIFICATIONS above and can be changed only by a writing signed by Landlord and Tenant.

C. Counterparts; Digital Signatures. If this Amendment is executed in counterparts, each is hereby declared to be an original; all, however, shall constitute but one and the same amendment. In any action or proceeding, any photographic, photostatic, or other copy of this Amendment may be introduced into evidence without foundation. The parties agree to accept a digital image (including but not limited to an image in the form of a PDF, JPEG, GIF file, or other e-signature) of this Amendment, if applicable, reflecting the execution of one or both of the parties, as a true and correct original.

D. Defined Terms. All words commencing with initial capital letters in this Amendment and defined in the Lease shall have the same meaning in this Amendment as in the Lease, unless they are otherwise defined in this Amendment.

E. Authority. If Tenant is a corporation, limited liability company or partnership, or is comprised of any of them, each individual executing this Amendment for the corporation, limited liability company or partnership represents that he or she is duly authorized to execute and deliver this Amendment on behalf of such entity and that this Amendment is binding upon such entity in accordance with its terms.

F. California Certified Access Specialist Inspection. Pursuant to California Civil Code § 1938, Landlord hereby states that the Premises have not undergone inspection by a Certified Access Specialist (CASp) (defined in California Civil Code § 55.52(a)(3)). Pursuant to Section 1938 of the California Civil Code, Landlord hereby provides the following notification to Tena A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction related accessibility standards within the premises.

G. Attorneys Fees. The provisions of the Lease respecting payment of attorneys fees shall also apply to this Amendment.

H. Nondisclosure of Lease Terms. Tenant acknowledges that the content of this Amendment and any related documents are confidential information. Except to the extent disclosure is required by law, Tenant shall keep such confidential information strictly confidential and shall not disclose such confidential information to any person or entity other than Tenant's financial, -
planning consultants, provided, however, that Tenant may disclose the terms to prospective subtenants or assignees under the Lease or pursuant to legal requirement.

I. Brokers. Article 18 of the Lease is amended to provide that the parties recognize the following parties as the brokers who negotiated this Amendment, and agree that Landlord shall be responsible for payment of brokerage commissions to such brokers pursuant to its separate agreements with such brokers: Irvine Management exclusively and Cresa/San Jose Downtown
execution of this Amendment, each of Landlord and Tenant hereby acknowledge and confirm (a) receipt of a copy of a Disclosure Regarding Real Estate Agency Relationship conforming to the requirements of California Civil Code 2079.16, and (b) the agency relationships specified herein, which acknowledgement
By the execution of this Amendment, Landlord and Tenant are executing the confirmation of the agency relationships set forth herein. The warranty and indemnity provisions of Article 18 of the Lease, as amended hereby, shall be binding and enforceable in connection with the negotiation of this Amendment.

VI. EXECUTION.

Landlord and Tenant executed this Amendment on the date as set forth in I. PARTIES AND DATE. above.

LANDLORD:

SILICON VALLEY CENTER OFFICE LLC,
a Delaware limited liability company

By: /s/ Stephen M. Case

Steven M. Case
Executive Vice President, Leasing & Marketing Office Properties

TENANT:

CAMBIUM NETWORKS, INC.,
a Delaware corporation

By: /s/ Stephen Cumming

Stephen Cumming CFO

By: /s/ Holly McManus

Holly McManus
Vice President, Operations Office Properties

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the registration statements (Nos. 333-232341, 333-237357 and 333-253723) on Form S-8 and (Nos. 333-250005 and 333-255851) on Form S-3 of our report dated February 24, 2022, with respect to the consolidated financial statements of Cambium Networks Corporation.

/s/ KPMG LLP

Chicago, Illinois
February 24, 2022

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Atul Bhatnagar, certify that:

1. I have reviewed this Annual Report on Form 10-K of Cambium Networks Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2022

By: /s/ Atul Bhatnagar

Atul Bhatnagar

Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Stephen Cumming, certify that:

1. I have reviewed this Annual Report on Form 10-K of Cambium Networks Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2022	By: /s/ STEPHEN CUMMING
	Stephen Cumming
	Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Cambium Networks Corporation (the “Company”) on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: February 24, 2022	By: /s/ Atul Bhatnagar
	Atul Bhatnagar
	Chief Executive Officer

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Cambium Networks Corporation (the "Company") on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: February 24, 2022

By: /s/ STEPHEN CUMMING
Stephen Cumming
Chief Financial Officer