

COMMSCOPE®

2020 Annual Report

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Three-year selected financial data

(Unaudited—in millions, except per share amounts)

Year Ended December 31

Result of operations	2018	2019	2020
Net sales	\$4,568.5	\$8,345.1	\$8,435.9
Gross profit	1,633.3	2,404.1	2,747.8
Restructuring costs, net	44.0	87.7	88.4
Asset impairments	15.0	376.1	206.7
Operating income (loss)	450.0	(508.5)	(51.8)
Net interest expense	(235.0)	(559.1)	(573.4)
Net income (loss)	140.2	(929.5)	(573.4)
Series A convertible preferred stock dividends	—	(43.7)	(56.1)
Net income (loss) attributable to common stock holders	140.2	(973.2)	(629.5)
Earnings (loss) per share information:			
Weighted average number of shares outstanding:			
Basic	192.0	193.7	196.8
Diluted	195.3	193.7	196.8
Earnings (loss) per share:			
Basic	\$0.73	\$(5.02)	\$(3.20)
Diluted	\$0.72	\$(5.02)	\$(3.20)
Non-GAAP adjusted results:			
Non-GAAP adjusted EBITDA ⁽¹⁾	\$913.6	\$1,297.5	\$1,215.2
Non-GAAP adjusted diluted earnings per share ⁽¹⁾	\$2.27	\$2.15	\$1.56
Other information:			
Net cash generated by operating activities	\$494.1	\$596.4	\$436.2
Depreciation and amortization	357.5	770.9	823.3
Additions to property, plant and equipment	82.3	104.1	121.2

Balance sheet data

As of December 31

Cash and cash equivalents	\$458.2	\$598.2	\$521.9
Goodwill and other intangible assets, net	4,204.3	9,735.3	8,936.9
Property, plant, and equipment, net	450.9	723.8	684.5
Total assets	6,630.5	14,431.6	13,576.8
Working capital	1,187.2	1,469.8	1,401.1
Long-term debt, including current maturities	3,985.9	9,832.4	9,520.6
Series A convertible preferred stock	—	1,000.0	1,041.8
Stockholders' equity	1,756.8	836.3	355.0

(1) See reconciliation of GAAP measures to Non-GAAP measures (page 6).

To our shareholders

CommScope achieved solid financial results in 2020, and we are proud of our strong execution in a remarkably challenging business environment. As the pandemic unfolded, our team reacted quickly to adapt and innovate across all aspects of the business, ensuring our customers were able to sustain - and even extend - the networking services that have been a lifeline to us in 2020.

Across the globe, we pivoted quickly to remote work, put in place robust health and safety systems in our factories, and initiated a business continuity program second to none in the industry. Within a matter of weeks, we had mitigated most of our supply risk, and our factories were running at capacity.

The experiences of 2020 have created new opportunities for us and our customers, accelerating demand for networking technology across the markets we serve. CommScope's technologies and expertise, combined with our passion to create lasting connectivity, are key to the digital transformation of business and society. True to our tagline, "now meets next," we are ready to support our customers as they meet the demands of today's and tomorrow's networks.

Our acquisition of ARRIS International extended our capabilities, customer base, and global presence. Now we look to shape our business for growth and shareholder value.



Chuck Treadway
President and Chief Executive Officer

2020 financial and business performance

Net sales increased year over year due to the acquisition of ARRIS on April 4, 2019 but were negatively impacted in many areas of the business by the global pandemic. And with challenges within our video set-top box products, we saw the business decline on the top- and bottom-lines from the prior year when adjusting our 2019 results to include the ARRIS business for the full year. Broadband Networks delivered growth in profitability; however, this was more than offset by adjusted EBITDA reductions in all other businesses.

We moved quickly to help protect the bottom-line and serve our customers in the challenging business environment of 2020. We leveraged our diversified and global manufacturing footprint to meet demand, aggressively managed our costs and accelerated our 2020 synergy plans.

Because of the significant steps we took, bottom-line results in the fourth quarter grew both sequentially and year-over-year. However, we acknowledge we must do more to drive and position CommScope for sustained growth.

Responding to the pandemic

I am proud of how we responded to support our customers, partners, employees, and communities throughout the pandemic. Guided by our values of teamwork, integrity and innovation, we solved some of the toughest connectivity challenges the world has faced. Here are some examples of how the CommScope team rose to the challenge:

- We rallied our resources to support critical communications needs. We donated in-building wireless systems for new hospitals being built to support COVID-19 patients in China, Europe and the US, used our 3D printers to make face shields for health workers, and equipped school buses and outdoor facilities to give communities access to connectivity.
- We launched a wireless Rapid Deployment Unit to bring safe and reliable network connectivity to ad hoc medical facilities, emergency response centers, and other locations critical in the response to COVID-19.
- We helped our office-based employees transition to working from home by providing a wide range of resources, including a paid COVID leave program to support salaried employees when ill, caring for family or serving their communities. We matched employee donations in support of global hunger relief and made financial donations to several organizations, including the American Red Cross, the Goa State COVID-19 Relief Account in India, ITDRC (Information Technology Disaster Resource Center) and United Way Chihuahua, Mexico.
- We offered over 50 courses and 150 hours of free technology training to our partners and the network and communications industry from our CommScope Infrastructure Academy, with over 18,000 attendees taking part.

Highlights

Throughout the year, we helped our customers transform their customer experiences and services. Highlights include:

- The deployment of up to 38,000 CommScope Wi-Fi 6 access points and 12,000 multi-gigabit switches for video-centric and virtual reality learning in classrooms for the **New Zealand Ministry of Education**
- The delivery of the millionth DOCSIS 3.1 gateway (TG3442) to **Vodafone Germany**.
- The switch-on of the **Allegiant Stadium** in Las Vegas, where 227 miles of CommScope fiber and 1.5 million feet of copper cable enable a new era of guest and business services.
- Further trials of next-generation cable broadband with the 10G **Mediacom Communications** trial highlighting the connected home experience of the not too distant future.
- Partnering with **Google's Area 120** for its **Orion Wi-Fi** service, enabling secure wireless roaming.
- Working with **Liberty Global** to produce its smallest, greenest set-top, deploying initially in Poland.
- Receiving the **Wi-Fi Alliance's Industry Impact Award** for our "significant contributions to global Wi-Fi adoption."
- The growth and uptake of government and regional incentives (legislative, financial, and operational) to connect the unconnected, transform education and healthcare with initiatives such as the CARES Act and RDOF in the US.
- Extension of our customer base, as we serve more utilities and new entrant service providers.

Our commitment to sustainability

Environmental, social and governance (ESG) remain a priority in everything we do. In 2020, we focused on providing a safe, inclusive work culture and environment for all employees, launching the CommScope Diversity and Inclusion Business Network (DIBN). To celebrate our people and our values, we inaugurated the Frank M. Drendel Community Service Excellence Awards to recognize and support the most significant community service efforts made by our employees.

For the first time ever, CommScope was recognized by the CDP (Carbon Disclosure Project) for our climate change efforts, achieving "Leadership Level" status. For the second year running, we were named in Newsweek's 2021 list of America's Most Responsible Companies and awarded "Gold Level" status by EcoVadis, a global leader in monitoring and benchmarking sustainability. In addition, we received recognition from the Government of Goa for being a "Role Model in the field of Corporate Social Responsibility."

CommScope NEXT

Delivering the networks of the future has never been more critical. The 5G revolution will not only connect more people and things but also empower the digital transformation of society. While our portfolio of solutions and expertise is extensive, there are opportunities to do more and challenges to address to ensure we sustain our competitive advantage. We are positioning CommScope to be at the forefront, ahead of our competitors; anticipating the needs of our customers to develop technology that transforms our experiences and our lives. That is why we are introducing a company-wide initiative, CommScope NEXT, focused on driving growth that outpaces the market, business optimization, and portfolio evaluation that we expect to result in significant shareholder and stakeholder value.

We are moving toward vertically integrated, general management organizations; away from being a highly matrixed organization. This will give each segment leader more transparency, control, and greater accountability for all aspects of their business. Furthermore, we will realign sales and marketing, address under-covered territories and regions, and enhance our channel relationships and strategic partnerships with our distributors.

We will focus on driving further efficiencies from our fixed cost structure - reviewing our business processes from procurement to product development. We will invest in growth areas to gain share, deliver on existing demand, and to get ahead in emerging markets and critical technologies; focusing our capital where we have winning value propositions, industry-leading technology and a clear path to growth and value creation.

As we continue to shape the future of networking, CommScope NEXT will require rigor, discipline, and focus from everyone. We have a lot of work ahead of us and still many challenges to overcome, but I've seen first-hand the awe-inspiring things we can do together. I could not feel more confident about the team's strength, openness to new ideas, and the future of CommScope.



Chuck Treadway

President and Chief Executive Officer



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Find our interactive annual report at ir.commscope.com

Reconciliation of GAAP measures to non-GAAP adjusted measures

(Unaudited—in millions, except per share amounts)

Year Ended December 31

Reconciliation of adjusted EBITDA	2018	2019	2020
Net income (loss), as reported	\$140.2	\$(929.5)	\$(573.4)
Income tax expense (benefit), as reported	30.5	(144.5)	(81.1)
Interest income, as reported	(7.0)	(18.1)	(4.4)
Interest expense, as reported	242.0	577.2	577.8
Other expense, net, as reported	44.3	6.4	29.3
Operating income (loss), as reported	450.0	(508.5)	(51.8)
Adjustments:			
Amortization of purchased intangible assets	264.6	593.2	630.5
Restructuring costs, net	44.0	87.7	88.4
Equity-based compensation	44.9	90.8	115.0
Asset impairments	15.0	376.1	206.7
Transaction and integration costs ⁽¹⁾	19.5	195.3	24.9
Acquisition accounting adjustments ⁽²⁾	-	264.2	20.6
Patent claims and litigation settlements	-	55.0	16.3
Executive severance	-	-	6.3
Depreciation	75.6	143.7	158.3
Non-GAAP adjusted EBITDA	\$913.6	\$1,297.5	\$1,215.2

Reconciliation of adjusted net income and adjusted diluted EPS

Net income (loss), as reported	\$140.2	\$(929.5)	\$(573.4)
Adjustments:			
Total pretax adjustments to adjusted EBITDA	388.0	1,662.4	1,108.7
Pretax amortization of debt issuance costs and OID ⁽³⁾	17.3	33.4	34.5
Pretax acquisition related interest ⁽³⁾	-	30.2	-
Pretax pension and postretirement benefit plan terminations ⁽⁴⁾	25.0	-	-
Pretax foreign currency loss on entity liquidation ⁽⁴⁾	14.0	-	-
Pretax loss on debt transactions ⁽⁴⁾	-	-	17.9
Tax effects of adjustments and other tax items ⁽⁵⁾	(142.0)	(317.1)	(216.7)
Non-GAAP adjusted net income	\$442.5	\$479.4	\$371.0
Diluted EPS, as reported ⁽⁶⁾	\$0.72	\$(5.02)	\$(3.20)
Non-GAAP adjusted diluted EPS ⁽⁷⁾	\$2.27	\$2.15	\$1.56

Reconciliation of adjusted free cash flow

Cash flow generated by operating activities, as reported	\$494.1	\$596.4	\$436.2
Less: Additions to property, plant and equipment	(82.3)	(104.1)	(121.2)
Adjustments:			
Cash paid for transaction and integration costs	8.3	210.7	21.7
Restructuring	40.2	89.9	78.7
Non-GAAP adjusted free cash flow	\$460.3	\$792.9	\$415.4

Note: Components may not sum to total due to rounding.

(1) In 2020 and 2019, primarily reflects transaction and integration costs related to the ARRIS acquisition. In 2018, primarily reflects integration costs related to the acquisition of the BNS business and transaction costs related to other potential and consummated acquisitions.

(2) Reflects non-cash charges resulting from the application of acquisition accounting. For the years ended December 31, 2020 and 2019, reflects acquisition accounting adjustments of \$20.6 million and \$45.4 million, respectively, related to reducing deferred revenue to its estimated fair value. For the year ended December 31, 2019, reflects acquisition accounting adjustments of \$218.8 million related to the mark up of inventory to its estimated fair value.

(3) Included in interest expense.

(4) Included in other expense, net.

(5) The tax rates applied to adjustments reflect the tax expense or benefit based on the tax jurisdiction of the entity generating the adjustment. There are certain items for which we expect little or no tax effect.

(6) For years ended December 31, 2020 and 2019, GAAP EPS was calculated using net loss attributable to common stockholders in the numerator, which includes the impact of the Series A convertible preferred stock dividend.

(7) Diluted shares used in the calculation of non-GAAP adjusted diluted EPS for the years ended December 31, 2020, 2019 and 2018 were 238.3 million, 223.1 million and 195.3 million, respectively.

CommScope management believes that presenting EBITDA, net income, diluted EPS, and cash flow information excluding the special items noted above provides meaningful information to investors in understanding operating results and may enhance investors' ability to analyze financial and business trends, when considered together with the GAAP financial measures. In addition, CommScope management believes that these non-GAAP financial measures allow investors to compare period-to-period more easily by excluding items that could have a disproportionately negative or positive impact on results in any particular period.

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, 2020

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: 001-36146

CommScope Holding Company, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

27-4332098

(I.R.S. Employer
Identification No.)

1100 CommScope Place, SE

28602

(828) 324-2200

Hickory, North Carolina

(Zip Code)

(Telephone number)

(Address of principal executive offices)

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

Title of each class	Ticker symbol	Name of each exchange on which registered
Common Stock, par value \$.01 per share	COMM	Nasdaq

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

Indicate by check mark whether 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 Section 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 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, a 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 control 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 Exchange Act Rule 12b-2). Yes No

The aggregate market value of shares of Common Stock held by non-affiliates of the registrant was approximately \$1,603.3 million as of June 30, 2020. For purposes of this computation, shares held by affiliates and by directors and officers of the registrant have been excluded.

As of February 5, 2021 there were 200,832,665 shares of the registrant's Common Stock outstanding.

Documents Incorporated by Reference

Portions of the registrant's Proxy Statement for the 2021 Annual Meeting of Stockholders are incorporated by reference in Part III hereof.

CommScope Holding Company, Inc.
Form 10-K
December 31, 2020
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PART I

Unless the context otherwise requires, references to “CommScope Holding Company, Inc.,” “CommScope,” “the Company,” “Registrant,” “we,” “us,” or “our” are to CommScope Holding Company, Inc. and its direct and indirect subsidiaries on a consolidated basis.

This Annual Report on Form 10-K includes certain statements that constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which reflect our current views with respect to future events and financial performance. These forward-looking statements are generally identified by their use of such terms and phrases as “intend,” “goal,” “estimate,” “expect,” “project,” “projections,” “plans,” “anticipate,” “should,” “could,” “designed to,” “foreseeable future,” “believe,” “think,” “scheduled,” “outlook,” “target,” “guidance” and similar expressions, although not all forward-looking statements contain such terms. This list of indicative terms and phrases is not intended to be all-inclusive.

These statements are subject to various risks and uncertainties, many of which are outside our control. Item 1A, “Risk Factors,” of this Annual Report on Form 10-K sets forth more detailed information about the factors that may cause our actual results to differ, perhaps materially, from the views stated in such forward-looking statements. Although the information contained in this Annual Report on Form 10-K represents our best judgment as of the date of this report based on information currently available and reasonable assumptions, we can give no assurance that the expectations will be attained or that any deviation will not be material. Given these uncertainties, we caution you not to place undue reliance on these forward-looking statements, which speak only as of the date made. We are not undertaking any duty or obligation to update any forward-looking statements to reflect developments or information obtained after the date of this Annual Report on Form 10-K, except to the extent required by law.

ITEM 1. BUSINESS

Company Overview

CommScope Holding Company, Inc. was incorporated in Delaware on October 22, 2010 and our initial public offering for our common stock was on October 25, 2013. Since our founding as an independent company in 1976, we have consistently played a significant role in many of the world’s leading communication networks. Our evolution has been driven by technological innovation and strategic acquisitions which expanded our product offerings and complemented our existing solutions. We are a global provider of infrastructure solutions for communication and entertainment networks. Our solutions for wired and wireless networks enable service providers including cable, telephone and digital broadcast satellite operators and media programmers to deliver media, voice, IP data services and Wi-Fi to their subscribers and allow enterprises to experience constant wireless and wired connectivity across complex and varied networking environments. Our solutions are supported by our broad array of services including technical support, systems design and integration. We are a leader in digital video and Internet Protocol television (IPTV) distribution systems, broadband access infrastructure platforms, and associated data and voice customer premises equipment. Our global leadership positions are built upon innovative technology, broad solution offerings, high-quality and cost-effective customer solutions, and global manufacturing and distribution scale.

We have a team of nearly 30,000 people to serve our customers in over 150 countries through a network of world-class manufacturing and distribution facilities strategically located around the globe. Our customers include substantially all the leading global telecommunication operators, data center managers, leading multi-system operators (MSOs) and thousands of enterprise customers, including many Fortune 500 companies. We have long-standing, direct relationships with our customers and serve them through a direct sales force and a global network of channel partners.

On April 4, 2019, we completed the acquisition of ARRIS International plc (ARRIS) (the Acquisition) in an all-cash transaction with a total purchase price of approximately \$7.7 billion, including debt assumed. We acquired ARRIS to drive profitable growth in new markets, shape the future of wired and wireless communications, and be in a position to benefit from key industry trends, including network convergence, fiber and mobility everywhere, 5G, Internet of Things (IoT) and rapidly changing network and technology architectures. The operations of ARRIS are included in our consolidated operating results for the year ended December 31, 2020 and for the year ended December 31, 2019 from the date of the Acquisition, which was April 4, 2019.

As of January 1, 2020, we reorganized our internal management and reporting structure as part of the integration of the Acquisition. The reorganization aligned our segments with the markets they serve and changed the information regularly reviewed by our chief operating decision maker for purposes of allocating resources and assessing performance. As a result, we are reporting financial performance based on four new operating segments: Broadband Networks (Broadband), Home Networks (Home), Outdoor Wireless Networks (OWN) and Venue and Campus Networks (VCN). All prior period amounts in this report have been recast to reflect these operating segment changes.

For the year ended December 31, 2020, our revenues were \$8.44 billion and our net loss was \$(573.4) million, which included goodwill impairment charges of \$206.7 million, restructuring costs of \$88.4 million and transaction and integration costs of \$24.9 million. For further discussion of our current and prior year financial results, see Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Operating Segments

As discussed above, as of January 1, 2020, we reorganized our internal management and reporting structure as part of the integration of the Acquisition. We operate and report based on four operating segments: Broadband, Home, OWN and VCN.

The distribution of net revenues among our four segments was as follows:

	Year Ended December 31,		
	2020	2019	2018
Broadband	34.3%	28.3%	31.7%
Home	28.0	30.4	—
OWN	14.7	17.7	32.6
VCN	23.0	23.6	35.7
Total	100.0%	100.0%	100.0%

Broadband (2020 Net Sales of \$2.9 billion)

Our Broadband segment combines our Network Cable and Connectivity (NCC) and Network and Cloud (N&C) businesses and provides an end-to-end product portfolio serving the telco and cable provider broadband market. The Broadband segment includes converged cable access platform, passive optical networking, video systems, access technologies, fiber and coaxial cable, fiber and copper connectivity and hardened closures.

Home Segment (2020 Net Sales of \$2.4 billion)

The Home segment is comprised of the former Consumer Premises Equipment business and offers broadband and video products. Home segment broadband offerings include devices that provide residential connectivity to a service providers’ network, such as digital subscriber line and cable modems and telephony and data gateways which incorporate routing and Wi-Fi functionality. Video offerings include set top boxes that support cable, satellite and IPTV content delivery and include products such as digital video recorders, high definition set top boxes and hybrid set top devices.

OWN Segment (2020 Net Sales of \$1.2 billion)

Our OWN segment brings together our RF Products and Integrated Solutions businesses and focuses on the macro and metro cell wireless markets. The segment's offerings include base station antennas, RF filters, tower connectivity, microwave antennas, metro cell products, cabinets, steel, accessories, Spectrum Access System and Comsearch. As our wireless operator customers shift a portion of their 5G capital expenditures from the macro tower to the metro cell, the OWN segment portfolio will strategically help make the transition smooth and cost-effective.

VCN Segment (2020 Net Sales of \$1.9 billion)

Our VCN segment targets both public and private networks for campuses, venues, data centers, and buildings and includes our Ruckus Networks, Enterprise and Distributed Coverage and Capacity Systems (DCCS) businesses. The segment combines Wi-Fi and switching, distributed antenna systems, licensed and unlicensed small cells, and enterprise fiber and copper infrastructure.

Industry Background

We participate in the large and growing global market for connectivity and essential communications infrastructure. This market is being driven by the growth in bandwidth demand associated with the continued demand of smartphones, tablets and machine-to-machine (M2M) communication as well as the proliferation of data centers, Big Data, cloud-based services, streaming media content and IoT. In addition, video distribution over the broadband IP network is transforming how content is managed and consumed. IP facilitates new forms of video such as Over-the-Top (OTT) and interactive television. Throughout 2020 due to the coronavirus (COVID-19) pandemic, we learned even more about business and consumer reliance on their network connectivity, as our products and services allowed a dramatic shift from working in offices to working in the home. We expect that as the world recovers from the COVID-19 pandemic we will continue to see a mix of connectivity needs in homes, offices and while on the move. As part of the shift in how people are using the network, we have seen more dramatic upticks in upstream usage than downstream usage. Some of this will subside as people work less from home, but some recent network usage trends will also become the new normal, requiring networks to be more symmetrical than in the past.

There are several major trends that we expect to drive network deployments and investment, including:

Evolving Network Architecture and Technology

The pace of change in networking has increased as consumers and data-driven businesses utilize more bandwidth and shift toward cloud and mobile applications. Exponential growth in video and mobile data consumption are revolutionizing how we connect to each other and changing the network architecture needed to support consumer demand. This trend requires better network coverage, greater broadband access, and increased capacity and data storage.

Our customers are working to transition their networks to become faster, more responsive and more efficient. The work from home trend caused by the COVID-19 pandemic has accelerated many of these network trends. We believe the following key network trends will continue to impact CommScope and the industry during 2021 and beyond:

- 1) ***Network Convergence***: Operators are moving toward converged or multi-use network architectures. Rather than building upon independent wireline and wireless networks, operators are now shifting toward networks that combine voice, video and data communications into a single converged data network for wired and wireless services.
- 2) ***Continued Disruption by Over-the-Top TV***: Although content consumption continues to increase, subscriptions to pay TV are declining. As a result, cable operators are compelled to invest in and upgrade their networks and expand their video, voice, data and mobile services to deliver higher data rates in both the uplink and downlink on their network. While past data trends have been defined by rapid growth in the downlink, IoT will drive the need for major network change in the uplink.

- 3) **Densification:** As wireless operators work to meet consumer demand, cell splitting, in the form of densification is expected to be a key driver for fulfilling the promise of 5G networks. Increased sectorization at macro cell sites and establishing better inbuilding coverage will also play significant roles in the 5G network. We expect that densification will require significant fiber cable and connectivity between wireless cell sites.
- 4) **Virtualization, Centralization and Disaggregation:** Operators are virtualizing and centralizing their networks to make them more flexible and efficient. Wireless operators are deploying centralized radio access networks (CRAN) as a first step in the evolution to a virtualized radio access network. Eventually this will enable servers and switches to replace some of the hardware specific equipment that exists today and allow much of the processing to be performed on general purpose processors wherever and whenever it is needed throughout the network. Cable operators are also seeking to virtualize their networks by moving from a traditional converged cable access platform (CCAP) architecture to a distributed access architecture (DAA). This moves some of the processing from the head end to the node and virtualizes the rest on traditional switches and servers.

Transition to 5G

5G wireless is evolving from an industry vision toward a tangible, next generation wireless technology. Many operators have begun a transition to 5G networks. The number of 5G-enabled devices is expected to continue to increase during 2021. The primary benefits of 5G are expected to include:

- Enhanced mobile broadband—to support significant improvement in data rates and user experience in both the uplink and downlink,
- IoT communications to support the expected billions of connections between machines as well as short bursts of information to other systems, and
- Low latency, high-reliability—to support applications that are critical or are needed in real time, like factory machines, virtual reality and augmentation.

Wireless operators will need to both acquire and launch new spectrum for 5G, as well as continue their strategy of re-allocation of spectrum from one generation to another. Some of this spectrum will be at much higher frequencies and will use new technologies to deliver exceptional amounts of bandwidth to subscribers. 5G also requires significant fiber infrastructure to connect wireless access points to each other to improve the response time of the network. As wireless operators transition toward 5G, they must also manage the fundamental network deployment issues of site acquisition, power, backhaul and in-building wireless proliferation.

In addition to investment required by wireless operators, the transition to 5G could also spark an investment cycle by cable operators as they upgrade their networks to compete with fixed wireless broadband, which could become a viable alternative to traditional broadband internet access.

Fiber Deep Deployments

Residential and business bandwidth consumption continues to grow substantially. The proliferation of OTT video, multiscreen viewing, cloud services and social media are prompting operators to accelerate fiber deployment. Operators can increase network capacity by installing fiber deeper into their networks. Although consumer devices are increasingly connected to the network via a wireless connection such as LTE or Wi-Fi, these wireless access points must have abundant backhaul capacity available to provide consumers the experience they expect. Operators around the globe are deploying fiber deep to build next generation networks. These networks use the capabilities of fiber to enable consumers access to content at higher speeds with improved network response time.

As networks improve and deliver higher speed and greater reliability, many operators are choosing to provide both residential and business services over a common physical layer infrastructure, saving them time and money. In addition, with the deployments of metro cells, outdoor small cells and fixed wireless broadband to the home, these same service providers are planning to utilize this common physical layer infrastructure to provide connectivity to these wireless access points.

Shift in Enterprise Spending

Several trends in the enterprise market are expected to create opportunities and challenges for us. First, the shift toward mobility in business enterprises is expected to impact the amount and type of structured copper connectivity needed over the longer-term. As the bandwidth requirements for Wi-Fi, indoor cellular networks (private and public), and IoT devices increase, more access points will be needed throughout commercial buildings. As a result, enterprises are expected to adjust in-building cabling designs to deliver both power and high-speed data to those devices. Power-over-ethernet is expected to become increasingly important as the number of devices used for Wi-Fi and indoor cellular networks multiplies. While enterprises continue to need copper connectivity to power edge devices, enterprises are deploying fiber more extensively in data centers. Over the next several years, we expect the growing demand for fiber and Wi-Fi solutions to result in decelerating demand for copper solutions in networks.

Due to huge increases in data traffic and migration of applications to the cloud, enterprises are also shifting spending toward multi-tenant (co-located) data centers and hyperscale cloud service providers, which offer cloud data center services as a replacement for in-house corporate data centers. Multi-tenant and hyperscale data center managers are focused on ultra-low loss, high density, scalable fiber connectivity solutions.

Enterprises are also looking at using LTE and 5G for their own, private uses. It is expected that private networks will become far more important to an enterprise's information technology plans and will provide a level of reliable connection that they have not been able to get from their Wi-Fi networks, further moving the demand of enterprise communications into the wireless domain.

Metro Cell, DAS and Small Cell Investment to Enhance and Expand Wireless Coverage and Capacity

As demand growth continues to outpace macro cell capacity growth, new solutions are required for densely populated areas. Metro cells and indoor networks have emerged as important layers of the network. Metro cells are smaller outdoor cell sites, located closer to the ground, having a lower power level than traditional macro cell sites. Metro cells blend into their environment and are often found integrated with traditional street furniture, which helps alleviate zoning restrictions that have made traditional deployments difficult.

Small cell and DAS solutions address the capacity and speed requirements from an indoor perspective. These systems provide coverage and capacity to the indoor environment and reduce the load from the macro and metro layers, which improves overall network performance. Small cell and DAS systems may range from small single operator, single-band, low-capacity systems for use in enterprise buildings to large multi-carrier, multi-technology, multi-band systems for use in high capacity public venues.

Transition to Wi-Fi 6

Wi-Fi 6 is the next generation standard in Wi-Fi technology that builds on and improves the current Wi-Fi standard. Until this point, all upgrades to Wi-Fi have been less than a gigabit, but Wi-Fi 6 breaks through this boundary and will likely drive the upgrade of not only the access point but also the switch and cabling systems. Moreover, regulatory efforts are underway to free up the necessary spectrum in the 6GHz band which will enable many more use cases and, in combination with Wi-Fi 6, untether a whole host of equipment.

Strategy

With the global rise in demand for consumer, business and device connectivity, we expect the need and reliance on communications networks to increase dramatically over the next ten years. Our strategy and 2021 priorities are to:

Continue Our Organizational Transformation

To support our goal of shaping the most advanced networks of the future, in January 2020, we realigned our operating and management structure to center around the markets we serve. Based on this new operating and management structure, our new segments are Broadband, Home, OWN and VCN. We are positioned as a leader in each of these areas already and will endeavor to defend our leadership in the more mature parts of these markets, while also shifting resources towards our targeted growth choices within them. We believe this realignment will not only improve the execution of our strategy and help unlock the full potential of our portfolio of end-to-end networking equipment, but it will also help us take advantage of greater revenue and cost synergy potential within our current businesses to achieve the following:

- Further improve our market leadership positions;
- Accelerate an integrated technology roadmap and position us to respond more quickly to new market opportunities;
- Allow us to create a unified supply chain organization to optimize our global manufacturing and distribution footprint and better position us to respond quickly to rapidly changing market conditions; and
- Position us to take advantage of our leadership position in fast growing, strategic markets.

Over the coming years, we expect to transform our organization into one that has better operational speed and resilience and can better service our existing customers, as well as new ones. One of the ways we can do this is to embrace the digital revolution and embrace the move to cloud-based software solutions both in our products and in our operations. We believe that by combining the strengths of our various products, services and technical capabilities, we can create more valued solutions that help our customers achieve better business outcomes and lower the overall cost per bit of communications networks, while making them more symmetrical and responsive at the same time.

Focus on Innovation to Solve Critical Problems

We plan to build on our legacy of innovation and on our worldwide portfolio of patents and patent applications by continuing to invest in research and development (R&D). We intend to drive profitable growth by enabling our service provider, enterprise, hyperscale and emerging cloud customers with the necessary broadband capacity to meet increased consumer demand. We also intend to utilize our deep industry expertise to offer unique perspectives to solve customers' challenges. We intend to focus our investment on high-growth markets.

Enhance Sales Growth

We intend to generate growth opportunities by:

- becoming more customer focused and increasing the value we provide to both our existing customers and new customers around the world;
- focusing on the value we can offer to customers at solving their stated and unstated problems;
- offering existing products and solutions into new geographic markets;
- collaborating with the world's leading service and content providers and maintaining deep industry relationships;
- better utilization of our distribution and channel partnerships; and
- building new integrated product offerings for existing and new use cases.

Become a Preferred Partner to our Customers

We plan to expand our industry leadership positions by developing and enhancing value-creating partner relationships with our customers, suppliers and distributors, as well as our channel and technology partners. We intend to expand these relationships by innovating, collaborating and selling with our customers. We expect to meet our commitments and maintain our product quality while collaborating with our customers to ensure we are providing solutions to their key network challenges.

Continue to Enhance Operational Efficiency and Cash Flow Generation

We continuously pursue strategic initiatives aimed at optimizing our utilization of resources by reducing manufacturing and distribution costs and optimizing our overall cost structure. We believe that we have a strong track record of improving operational efficiency and successfully executing on formalized annual profit improvement plans, cost-savings initiatives and working capital improvements to drive future profitability and cash flow. We believe we will be able to increase overall cash flow from operations and we intend to use cash we generate to reduce our indebtedness and eventually return to making strategic acquisitions.

Customers

Our customers include substantially all the leading global telecommunications operators, data center managers, leading cable television, telecommunication and satellite multi-channel video service providers and MSOs, thousands of enterprise customers, including many Fortune 500 companies, and end customers in hospitality, venues, education, government and smart cities, which we serve both directly and indirectly. Major customers and distributors include companies such as Anixter International Inc. (Anixter) (now Wesco International, Inc.); Charter Communications, Inc.; Comcast Corporation (Comcast); Genesis Networks Enterprises, LLC.; Graybar Electric Co. Inc.; KGP Co.; NBN Co. Limited; Talley Inc.; T-Mobile U.S. Inc.; and Verizon Communications Inc. For the year ended December 31, 2020, we derived approximately 17% of our consolidated net sales from our top two direct customers and our largest customer, Comcast, accounted for 11% of our consolidated net sales. For the year ended December 31, 2019, after giving effect to the Acquisition as if it happened on January 1, 2019, we would have derived approximately 13% of our consolidated net sales from Comcast. Sales to Comcast are derived from our VCN, Broadband and Home segments. Net sales to Anixter accounted for 11% of our actual consolidated net sales for the year ended December 31, 2018. Net sales to Anixter primarily originate in the VCN segment.

Products from our Broadband segment are primarily sold directly to wireline network service providers, such as telephone companies and cable television network providers, to be deployed by them into their service delivery networks. In some cases, we sell through specialized resellers and distributors who primarily provide logistics support and in certain circumstances post-sale service and support. Our customer service and engineering groups maintain close working relationships with these customers due to the significant amount of customization associated with some of these products. We sell these products to most of the wireline and satellite operators globally.

Products from our Home segment are primarily sold directly to wireline network service providers, such as telephone companies and cable television network providers, to be deployed by them into their subscribers' homes and businesses. We sell some products to satellite video distributors who also deploy our products into their subscribers' premises. In some cases, we sell through specialized resellers and distributors who primarily provide logistics support and, in certain circumstances, post-sale service and support. Our customer service and engineering groups maintain close working relationships with these customers due to the significant amount of customization associated with some of these products. We sell these products to most of the wireline and satellite operators globally. In the U.S., we also sell certain products directly to consumers over the internet and through brick and mortar retailers.

Products from our OWN segment are primarily sold directly to wireless operators, OEMs that sell equipment to wireless operators and other service providers that deploy elements of wireless networks at the direction of wireless operators. Our customer service and engineering groups maintain close working relationships with these customers due to the significant amount of customization associated with some of these products. Although we sell to most wireless operators globally, we are dependent on a small number of large operators.

Products from our VCN segment are primarily sold through independent distributors or system integrators for large telecommunications operators and to customers in a broad range of enterprise vertical markets, including hospitality, education, smart cities, government, venues and service providers indirectly through channel partners. We also sell directly to cable television system operators, broadband operators and service providers that deploy broadband networks. In certain circumstances, we do sell VCN segment products directly to end customers, but it is a relatively small part of the overall business.

We generally have no minimum purchase commitments from any of our distributors, system integrators, channel partners, value-added resellers, wireless operators or OEM customers, and our contracts with these parties generally do not prohibit them from purchasing from our competitors or offering products or services that compete with ours. Although we maintain long-term relationships with these parties and have not historically lost key customers, we have experienced significant variability in the level of purchases by our key customers. Any significant reduction in sales to these customers, including as a result of the inability or unwillingness of these customers to continue purchasing our products, could materially and adversely affect our business, financial condition, results of operations and cash flows. See Part 1, Item 1A, "Risk Factors."

Competition

The markets in which we participate are dynamic and highly competitive, requiring companies to react quickly to capitalize on opportunity. We retain skilled and experienced personnel and deploy substantial resources to meet the changing demands of the industry and to capitalize on change. The market for our products is highly competitive and subject to rapid technological change. We encounter significant domestic and international competition across all segments of our business.

Our competitors include large, diversified companies some of whom have substantially more assets and greater financial resources than we do. We also face competition from small to medium-sized companies and less diversified companies that have concentrated efforts in one or more areas of the markets we serve. Major competitors by segment include the following: Broadband segment - Cisco Systems, Inc., Corning Inc., Harmonic Inc., and Huawei Technologies Co., Ltd.; Home segment - Huawei Technologies Co., Ltd., Humax Co., Ltd., Sagemcom Broadband SAS and Technicolor S.A.; OWN segment - Comba Telecom Systems Holding Ltd., Telefonaktiebolaget LM Ericsson, Huawei Technologies Co., Ltd. and Rosenberger NA; and VCN segment - Cisco Systems, Inc., Comba Telecom Systems Holding Ltd., Hewlett Packard Enterprise Development LP and Huawei Technologies Co., Ltd.

We compete primarily on the basis of delivering solutions, product specifications, quality, price, customer service and delivery time. We believe that we differentiate ourselves in many of our markets based on our market leadership, global sales channels, intellectual property, strong reputation with our customer base, the scope of our product offering, the quality and performance of our solutions, and our service and technical support.

Competitive Strengths

We are a global leader in connectivity and essential infrastructure solutions for communications and entertainment networks, and we believe we hold leading market positions in our segments. Since our founding in 1976, CommScope has been a leading brand in connectivity solutions for communications networks. In the cable television and video network equipment industry, both CommScope and ARRIS are longstanding market leaders, along with other brands we own such as Ruckus, Pace, Motorola Home, ADC and many smaller brands. In the wireless industry, Andrew is one of the world's most recognized brands and a global leader in RF solutions for wireless networks. In the enterprise market, SYSTIMAX, NETCONNECT and Uniprise are recognized as global market leaders in enterprise connectivity solutions for business enterprise and data center applications.

We believe the following competitive strengths have been instrumental to our success and position us well for future growth and strong financial performance:

Differentiated Solutions Supported by Ongoing Innovation and Significant Proprietary Intellectual Property (IP)

Our integrated solutions for building better networks are differentiated in the marketplace and are a significant global competitive advantage. We help our customers achieve better business outcomes, and serve their customers, employees, and shareholders. We invested \$703.3 million in research and development during 2020 to advance product innovation and drive total cost of deployment and ownership down. Our ongoing innovation, supported by proprietary intellectual property and technology know-how, has allowed us to build and sustain a competitive advantage.

Established Sales Channels and Customer Relationships

We serve customers in over 150 countries and have become a trusted advisor to many of them through our industry expertise, quality products, leading technology and long-term relationships. These factors enable us to provide mission-critical connectivity solutions that our customers need to build and maintain high-performing communication networks. Our customers include substantially all the leading global telecommunications operators, data center managers, cable television providers or MSOs and thousands of enterprise customers, including many Fortune 500 companies. We are a key supplier within the wireless infrastructure market and enjoy established sales channels across all geographies and technologies. Our long-standing relationships with telecommunication operators enable us to work closely with them in providing highly customized solutions aligned with their technology roadmaps. We have a global sales force with sales representatives based in North America, Europe, Latin America, Asia and other regions, and an extensive global network of channel partners, including independent distributors, system integrators and value-added resellers. Our sales force has direct relationships with our customers and end users which generates demand for our products, with a significant portion of our sales fulfilled through channel partners. Our direct sales force and channel partner relationships give us extensive reach and distribution capabilities to customers globally.

Global Scale, Manufacturing Footprint and Quality

Our global manufacturing and distribution footprint and worldwide sales force give us significant scale within our addressable markets. We believe our scale, stability and quality make us an attractive strategic partner to our large global customers, and we have been repeatedly recognized by key customers for these attributes. In addition, our ability to leverage our core competencies across our business, coupled with our successful track record of operational efficiencies, has allowed us to improve our margins and cash flows over time while continuing to invest in research and development and acquisitions targeting new products and markets.

Our manufacturing and distribution facilities are strategically located to optimize service levels and product delivery times. We also utilize lower-cost geographies for high labor content products and largely automated plants in higher cost regions. Most of our manufacturing employees are in lower-cost geographies such as Mexico, China, India and the Czech Republic. The combination of our dynamic manufacturing organization, our global network of third-party manufacturers and our distribution organization allows us to:

- Flex our capacity to meet market demand and expand our market position;
- Deliver high-quality customer solutions;
- Provide high customer service levels due to proximity to the customer; and
- Effectively integrate acquisitions and capitalize on related synergies.

Record of Operational Excellence and Successful Acquisition Integration

We have a history of strong operating cash flow and have generated over \$1.5 billion in cumulative operating cash flow over the last three years. Our strong cash flow profile has allowed us to pay down \$1.4 billion of debt over the past three years, while also investing \$1.5 billion in research and development aimed at both driving profit expansion and revenue growth. We continuously pursue strategic initiatives aimed at optimizing our resources, reducing manufacturing and distribution costs and lowering our overall cost structure.

Throughout our history, we have successfully complemented our organic growth with strategic acquisitions. We are ahead of plan on our commitment around the ARRIS synergy capture and have successfully reorganized the combined business around our end markets. We completed the Broadband Network Systems (BNS) business integration and delivered substantial synergies while also completing significant system integrations and reorganizing the business. We have also executed tuck-in acquisitions, such as Cable Exchange, Airvana, Argus and Alifabs, to help expand our market opportunities and continue to solve our customers' business challenges in multiple growth areas.

Manufacturing and Distribution

We maintain a balance of internal and external manufacturing providers to continue offering our customers a competitive combination of quality, cost and flexibility in meeting their needs. We develop, design, fabricate, manufacture and assemble many of our products and solutions in-house at our facilities located around the world. We have strategically located our manufacturing and distribution facilities to provide superior service levels to customers. We utilize lower-cost geographies for high labor content products while investing in largely automated plants in higher-cost regions close to customers. Most of our manufacturing employees are located in lower-cost geographies such as Mexico, China, India and the Czech Republic.

In addition, we utilize contract manufacturers located throughout the world, including in Brazil, China, Malaysia, Mexico, South Africa, Thailand, Vietnam and the U.S., for many of our product groups, including those in our Home segment, certain Broadband segment products, certain OWN segment products and all of our Ruckus products. Our global footprint allows us to hedge against macroeconomic headwinds in an everchanging environment.

We continuously evaluate and adjust operations to improve service, lower cost and improve the return on our capital investments, and we expect to continue modifying our global operations to adapt to changing product demand and business conditions.

Raw Materials and Components

Our products are manufactured or assembled from both standard components and parts that are unique to our specifications. Our internal manufacturing operations are largely process oriented and we use significant quantities of various raw materials, including aluminum, bimetals, brass, copper, plastics and other polymers, optical fiber and steel, among others. We use significant volumes of copper, aluminum, steel and polymers in manufacturing coaxial and twisted pair cables and antennas. Other parts are produced using processes such as stamping, machining, molding and pressing from metals or plastics. Portions of the requirements for these materials are purchased under supply arrangements where some portion of the unit pricing may be indexed to commodity market prices for these metals. We may occasionally enter forward purchase commitments or otherwise secure availability for specific commodities to mitigate our exposure to price changes for a portion of our anticipated purchases. Certain of the raw materials utilized in our products may only be available from a few suppliers, and we may enter into longer term agreements to secure access to certain key inputs. We may, therefore, encounter availability issues and/or significant price increases.

Our profitability may be materially affected by changes in the market price of our raw materials, most of which are linked to the commodity markets. Prices for aluminum, copper, plastics and certain other polymers derived from oil and natural gas have fluctuated substantially during the past several years. We have adjusted our prices for certain products and may have to adjust prices again. Delays in implementing price increases, failure to achieve market acceptance of price increases, or price reductions in response to a rapid decline in raw material costs, could have a material adverse impact on the results of our operations.

In addition, some of our products are assembled from specialized components and subassemblies manufactured by third-party suppliers. We depend upon sole suppliers for certain of these components, including memory and chip capacitors. If these sources cannot provide these components in sufficient quantity and quality on a timely and cost-efficient basis, it could materially impact our results of operations until another qualified supplier is found. We believe that our supply contracts and our supplier contingency plans mitigate some of this risk. Our supply agreements include technology licensing and component purchase contracts. Several of our competitors have similar supply agreements for these components. In addition, we license software for operating network and security systems or sub-systems and a variety of routing protocols from different suppliers.

Research and Development

We operate in an industry that is subject to rapid changes in technology, and our success is largely contingent upon anticipating and reacting to such changes. Accordingly, R&D is important to preserve and expand our position as a market leader and to provide the most technologically advanced solutions in the marketplace. We invested \$703.3 million in research and development during 2020, and we expect to continue with substantial investments in future years. We intend to focus our major R&D activities on high-growth opportunities such as fiber optic connectivity for fiber-to-the-x (FTTX) and data centers, Wi-Fi 6 and 6GHz, CCAP, DAA, Data Over Cable Service Interface Specification (DOCSIS) 4.0, gigabit passive optical network (GPON), active and passive base-station antennas and metro cell and small cell wireless solutions. We are also developing solutions that support the convergence of wireline and wireless networks in connection with the rollout of 5G. Several of our professionals are leaders and active contributors in standards-setting organizations, which helps ensure that our products can be formulated to achieve broad market acceptance.

Backlog and Seasonality

At December 31, 2020 and 2019 we had an order backlog of \$1,964.3 million and \$1,243.2 million, respectively. Orders typically fluctuate from quarter to quarter based on customer demand and general business conditions. Our backlog includes only orders that are believed to be firm. Sometimes, unfilled orders may be canceled prior to shipment of goods, but cancellations historically have not been material. However, our current order backlog may not guarantee future demand.

Due to the variability of shipments under large contracts, customers' seasonal installation considerations and variations in product mix and in profitability of individual orders, we can experience significant quarterly fluctuations in sales and operating income. Our operating performance is typically weaker during the first and fourth quarters and stronger during the second and third quarters. These variations are expected to continue in the future. It may be more meaningful to focus on annual rather than interim results.

Patents and Trademarks

We pursue an active policy of seeking intellectual property protection, including patents and registered trademarks, for new products and designs. For technology that is not owned by us, we have a program for obtaining appropriate licenses to ensure that we have the necessary license coverage for our products. In addition, we have formed strategic relationships with leading technology companies to provide us with early access to technology that we believe will help keep us at the forefront of our industry.

On a worldwide basis, we held approximately 15,000 patents and patent applications and approximately 3,000 registered trademarks and trademark applications. We consider our patents and trademarks to be valuable assets, and although no single patent is material to our overall operations, we believe the COMMScope, ARRIS, SURFBOARD, RUCKUS, SYSTIMAX, NETCONNECT, ERA, ONECELL and HELIAX trade names and related trademarks are critical assets to our business. We intend to rely on our intellectual property rights, including our proprietary knowledge, trade secrets and continuing technological innovation, to develop and maintain our competitive position. From time to time there are disputes with respect to the ownership of the technology used in our industry and accusations of patent infringements. We will continue to protect our key intellectual property rights.

Government Regulation

We are subject to various domestic and international government regulations. For example, our international operations expose us to increased challenges in complying with anti-corruption laws and regulations of the U.S. government and various other international jurisdictions. We are also subject to governmental export and import regulations and sanctions programs that could subject us to liability or impair our ability to compete in international markets. In addition, because of the nature of information that may pass through or is stored on our solutions or networks, we and our end customers may be subject to complex and evolving U.S. and foreign laws and regulations regarding privacy, data protection and other matters. Further, we are subject to various federal, state, local and foreign environmental laws and regulations governing, among other things, substances used in our products, discharges to air and water, management of regulated materials, handling and disposal of solid and hazardous waste, and investigation and remediation of contaminated sites. See Part I, Item 1A, "Risk Factors" for additional discussion of our risks related to government laws and regulations.

Corporate Responsibility and Sustainability

We believe that corporate responsibility and sustainability means making decisions that have a positive impact on our people, planet and bottom line. Our company-wide sustainability mission is to enable faster, smarter and more sustainable solutions while demonstrating the utmost respect for our human and natural resources. We are accomplishing this mission by utilizing innovative technology, intelligent engineering and energy efficient design to build more sustainable networks that make our customers more agile, while at the same time seeking to preserve the natural ecosystems from which we source our raw materials. While we may provide technological solutions, it is our people who make the real difference in our communities. Their commitment to our customers, fellow employees and the communities in which they live and work drives them to provide creative solutions, services and practices that are safe and sustainable for our environment and future generations.

We understand how important it is to consider the larger impact of our actions beyond the balance sheet. We are proud of CommScope's prominent standing in one of the world's most vital and dynamic industries. We push ourselves and our thinking for the purpose of creating a better and sustainable tomorrow. For the sake of our current and future generations, we will continue to grow as a sustainable, environmentally conscious business that benefits the whole planet.

For additional information, see our Corporate Responsibility & Sustainability pages on the CommScope website: <https://www.commscope.com/About-Us/Corporate-Responsibility-and-Sustainability/>.

Human Capital Management

Our employees are at the center of everything we do at CommScope, and we understand they are the driving force for our innovation and success. CommScope works to ensure it provides a safe, inclusive, and enjoyable workplace environment for all its employees. We have a global team of nearly 30,000 employees with approximately 60% classified as manufacturing employees. The majority of these manufacturing employees are located in low-cost labor countries such as Mexico, China, India and the Czech Republic. Our U.S. workforce is a mix of manufacturing and non-manufacturing employees and makes up approximately 20% of our employee base.

More than ever, our employees have united behind our common purpose to “Create Lasting Connections” all over the world. We unite, collaborate and innovate to create the world’s most advanced networks and succeed by having people who come to work passionate about delivering on this vision every day. Core pillars underlying our Human Capital Management strategy focus on employee engagement, employee training and development, employee inclusion, equality, and diversity, and employee health, safety and well-being.

Employee Engagement

CommScope prides itself on creating a culture where feedback and communication are vital in building an engaging, employee-centric organization. To that end, twice-yearly, around May and November, we “take the pulse” of our organization through a global engagement survey. This Pulse Survey obtains the voice of our employees worldwide and identifies strengths and development areas in our culture as well as management effectiveness. Strong results have shown up consistently over the last year in areas such as engagement, teamwork and collaboration, pride in working for CommScope as well as the strategic clarity of the business. CommScope plans to continue to build out the total employee experience for our employees, in line with our purpose, vision and corporate values.

Employee Education, Training and Development

We are committed to developing the careers and capabilities of our current and future employees. We have an Early Career Strategy aimed at recruiting people for internships and co-ops, ensuring we are hiring the top early career talent where and when they’re needed. Once hired, our career development and learning philosophy is based on the belief that employees learn best through a combination of work experience, coaching, feedback, training and education.

We use an online platform, TalentConnections, to manage permanent employees’ performance and goals throughout the year, providing continuous development opportunities through coaching and feedback. The Global LearnCenter (GLC) is CommScope’s online learning platform consisting of a wealth of work-related development topics, including product knowledge, leadership development, project management, general business content as well as ethics and diversity training. Growth is not only achieved through these learning platforms but also through our regular town halls, round tables and everyday interaction with our front-line managers. We focus heavily on interacting with our employees how, when and where it matters most.

Employee Inclusion, Equality, and Diversity

CommScope strives to create an inclusive environment that draws upon the strength of the diversity within our workforce to meet and exceed the expectations of our customers, employees and stockholders. CommScope’s global workforce comprises individuals of many races, cultures, backgrounds, geographies and experiences. That’s something we take pride in and work constantly to support. We know diversity makes us stronger and helps to further grow our company and create fully inclusive teams. CommScope launched a global Diversity & Inclusion Business Network in June 2020, providing employees with opportunities to network, learn and lead, grow their careers and support their communities. We not only focus on diversity but also equality in the workplace.

CommScope regularly benchmarks its compensation and benefits by country with companies comparable in size and scope to enable competitive and equitable pay. As part of our ongoing process, we work to ensure employees are paid equitably, regardless of gender, nationality or disability. We base pay on the job being performed, employee experience and performance.

Employee Health, Safety and Well-being

At CommScope, our employees' health, safety and well-being are our top priority. In 2020 this has come more into focus than ever with the ongoing COVID-19 pandemic. In response, we have implemented rigorous health and safety protocols globally. Overall, our vision is to seek opportunities to protect the well-being of our employees, customers, suppliers, environment and communities.

A commitment to business practices that are innovative, safe and sustainable is key to our company's success. To achieve this, we have established a robust Environment, Health & Safety (EHS) management system, set objectives and targets, provided necessary resources and created a comprehensive well-being and benefits program. All this encourages ongoing improvement as we continue to unlock the greatest potential for our employees. The global EHS team has designed and implemented an integrated, companywide EHS management system based on the requirements of the International Standards of ISO45001 and ISO14001.

CommScope seeks to inspire a culture of proactive health where our employees make lifestyle decisions that lead to enjoyable careers and balanced lives. To realize this goal, we support our workforce by providing tools, services and programs that help our employees achieve and maintain optimal personal health. We made a commitment in our benefits program to ensure we provide our employees and their family members with a compelling and competitive benefits package that offers value, choices and resources to help manage their well-being, including our GuidanceResources program, which provides physical, emotional, legal and financial well-being resources to employees.

Available Information

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge on our web site at www.commscope.com under Company — Investor Relations as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The information posted to our website is not incorporated into this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

The following is a cautionary discussion of risks, uncertainties and assumptions that we believe are significant to our business. In addition to the factors discussed elsewhere in this Annual Report on Form 10-K, the following are some of the important factors that, individually or in the aggregate, we believe could make our results differ materially from those described in any forward-looking statements. It is impossible to predict or identify all such factors and, as a result, you should not consider the following factors to be a complete discussion of risks, uncertainties and assumptions related to us or our business.

Summary Risk Factors

The following is a summary of some of the risks, uncertainties and assumptions that could materially adversely affect our business, financial position, results of operations and cash flows. You should read this summary together with the more detailed description of each risk factor contained below.

Strategic Risks

- Our business strategy relies in part on acquisitions to create growth. We may not fully realize anticipated benefits from past or future acquisitions or investments in other companies.
- We may sell or discontinue one or more of our product lines as a result of our evaluation of our products and markets.
- The Carlyle Group (Carlyle) owns a substantial portion of our equity and its interests may not be aligned with yours.
- Difficulties may be encountered in the realignment of manufacturing capacity and capabilities among our global manufacturing facilities and our contract manufacturers that could adversely affect our ability to meet customer demand for our products.
- We may need to undertake additional restructuring actions in the future.

Competitive Risks

- Our business is dependent on third party capital spending for data, communication and entertainment networks, and reductions in such capital spending could adversely affect our business.
- A substantial portion of our business is derived from a limited number of key customers and channel partners.
- We face competitive pressures with respect to all our major product groups.
- Our ability to sell our products is highly dependent on the quality of our support and services offerings after the sale, and our inability to execute after the sale would have a material adverse effect on business.
- Changes to the regulatory environment in which our customers operate and changes in or uncertainty about government funded programs may negatively impact our business.

Operational Risks

- If our integrated global manufacturing operations suffer production or shipping delays, we may have difficulty meeting customer demands.
- Our future success depends on our ability to anticipate and adapt to changes in technology and customer preferences and develop, implement and market innovative solutions.
- If we do not stay current with product life cycle developments, our business may suffer.
- If our products do not effectively interoperate with cellular networks and mobile devices, future sales of our products could be negatively affected.
- If our service offerings or products, including material purchased from our suppliers, have quality or performance issues, our business may suffer.
- We depend on cloud computing infrastructure operated by third-parties and any disruption in these operations could adversely affect our business.
- Our business depends on effective management information systems.
- Cyber-security incidents, including data security breaches, ransomware or computer viruses, could harm our business by exposing us to various liabilities, disrupting our delivery of products and services and damaging our reputation.
- Climate change may have a long-term impact on our business.

Supply Chain Risks

- Our dependence on commodities subjects us to cost volatility and potential availability constraints.
- We are dependent on a limited number of key suppliers for certain raw materials and components.
- Capacity constraints with respect to our internal facilities and/or existing or new contract manufacturers could have an adverse impact on our business.
- If our contract manufacturers encounter production, quality, financial or other difficulties, we may experience difficulty in meeting customer demands.

Financial Risks

- Our substantial indebtedness could adversely affect our ability to raise additional capital to fund our operations, limit our ability to react to changes in the economy or our industry, expose us to interest rate risk to the extent of our variable rate debt and prevent us from meeting our financial obligations.
- Despite current indebtedness levels and restrictive covenants, we may still incur additional indebtedness that could further exacerbate the risks associated with our substantial financial leverage.
- To service our indebtedness and pay dividends on our preferred stock, we will require a significant amount of cash and our ability to generate sufficient cash depends on many factors beyond our control.
- We may need to recognize additional impairment charges related to goodwill, identified intangible assets and fixed assets.
- The IRS may not agree ARRIS International plc (ARRIS) was a foreign corporation for U.S. federal income tax purposes.

Labor Related Risks

- We may not be able to attract and retain key employees.
- Labor unrest could have a material adverse effect on our business, results of operations and financial condition.

International Risks

- Our significant international operations expose us to economic, political and other risks.
- Additional tariffs or a global trade war could increase the cost of our products, which could adversely impact the competitiveness of our products.
- Our international operations expose us to increased challenges in complying with anti-corruption laws and regulations of the U.S. government and various other international jurisdictions.
- We are subject to governmental export and import controls and sanctions programs that could subject us to liability or impair our ability to compete in international markets.

Litigation and Regulatory Risks

- We may not be successful in protecting our intellectual property and in defending against claims that we are infringing on the intellectual property of others and such actions may be costly.
- Because of the nature of information that may pass through or be stored on our solutions or networks, we, our vendors and our end customers may be subject to complex and evolving U.S. and foreign laws and regulations regarding privacy, data protection and other related matters.
- Compliance with current and future environmental laws and potential environmental liabilities may have a material adverse impact on our business, financial condition and results of operations.

General Risks

- The current COVID-19 pandemic and any other future public health crisis, could materially adversely affect our business, financial condition, results of operations and cash flows.
- We may experience significant variability in our quarterly or annual effective income tax rate.
- We do not intend to pay dividends on our common stock and, consequently, the ability of investors to achieve a return on their investment will depend on appreciation in the price of our common stock.
- Provisions of our certificate of incorporation and bylaws and Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, as a result, depress the trading price of our common stock.
- Our business could be negatively impacted as a result of actions by activist stockholders or others.

Strategic Risks

Our business strategy relies in part on acquisitions to create growth. We may not fully realize anticipated benefits from past or future acquisitions or investments in other companies.

All acquisitions, including the 2019 acquisition of ARRIS (the Acquisition), involve risks, such as the assumption of additional liabilities and expenses, issuance of debt, incurrence of transaction and integration costs, diversion of management's attention from other business concerns, assumption of unknown contingent liabilities and unanticipated litigation costs. There are also significant challenges to integrating an acquired operation into our business, including, but not limited to successfully managing the operations, manufacturing facilities and technology; integrating the sales organizations; maintaining and increasing the customer base; retaining key employees, suppliers and distributors; integrating management information systems, including ERP systems; integrating inventory management and accounting activities; integrating R&D activities; navigating markets in which we potentially have limited or no prior experience; integrating and implementing effective disclosure controls and procedures and internal controls over financial reporting; and the impact of goodwill or other impairment charges, amortization costs for acquired intangible assets and acquisition accounting treatment, including the loss of deferred revenue and increases in the fair values of inventory and other acquired assets, on our GAAP financial condition and results of operations. Furthermore, such acquisitions may be dilutive to our financial results.

Although we typically expect to realize strategic, operational and financial benefits as a result of our past and future acquisitions and investments, we cannot predict or guarantee whether and to what extent anticipated cost savings, synergies and growth prospects will be achieved.

Both CommScope and ARRIS have completed a number of significant acquisitions and invested in other companies over recent years and we expect to make additional acquisitions and strategic investments in the future. For instance, in 2017, ARRIS acquired the Ruckus Wireless and ICX Switch business (Ruckus Networks); in 2016, ARRIS combined with Pace plc (Pace); and in 2015, CommScope acquired TE Connectivity's BNS business. We anticipate that a portion of any future growth of our business will be accomplished by acquiring existing businesses, products or technologies. However, we may not be able to identify suitable acquisition opportunities or obtain the necessary financing on acceptable terms. We may spend time and money investigating and negotiating with potential acquisition or investment targets but not complete the transaction.

We may sell or discontinue one or more of our product lines as a result of our evaluation of our products and markets.

We periodically evaluate our various product lines and may consider the divestiture or discontinuance of one or more of those product lines. Any such divestiture or discontinuance could adversely affect our financial position, results of operations and cash flows. Divestitures of product lines have inherent risks and costs, including potential post-closing claims for indemnification and potential loss of customers, even with respect to retained product lines. Expected cost savings may also be difficult to achieve or maximize due to a fixed cost structure, and we may experience varying success in the timely reduction of fixed costs or transferring of liabilities previously associated with the divested or discontinued business.

Carlyle owns a substantial portion of our equity and its interests may not be aligned with yours.

Funding for the Acquisition included an investment by Carlyle in our Series A Convertible Preferred Stock. As a result, Carlyle owns approximately 16% of our common stock on an if-converted basis and has the right to designate up to two directors on our Board of Directors. In addition, certain of our existing directors are senior advisors to Carlyle. Circumstances may occur in which the interests of Carlyle could conflict with the interests of our other stockholders.

Difficulties may be encountered in the realignment of manufacturing capacity and capabilities among our global manufacturing facilities and our contract manufacturers that could adversely affect our ability to meet customer demand for our products.

We periodically realign manufacturing capacity among our global facilities and contract manufacturers in order to reduce costs by improving manufacturing efficiency and to strengthen our long-term competitive position. The implementation of these initiatives may include significant shifts of production capacity among facilities and contract manufacturers. We have done this in the past related to the integration of certain acquisitions, including the integration of the ARRIS business. Also, in prior years, with some of the uncertainties in the U.S. trade tariff environment, we transitioned manufacturing for certain impacted products to non-tariff countries. In addition, in response to intermittent shutdowns of our facilities during the COVID-19 pandemic, we transitioned certain manufacturing to less impacted facilities. These changes are time-consuming and costly, and changes in our contract manufacturers or manufacturing locations may cause significant interruptions in supply if the manufacturers have difficulty manufacturing products to our specifications. There are significant risks inherent in the implementation of these initiatives, including our failure to ensure the following: adequate inventory on hand or production capacity to meet customer demand while capacity is being shifted among facilities; maintaining product quality as a result of shifting capacity; adequate raw material and other service providers to meet the needs at the new production locations; ability to successfully remove, transport and re-install equipment; and availability of adequate supervisory, production and support personnel to accommodate the shifted production. In the event manufacturing realignment initiatives are not successfully implemented, we could experience lost future sales and increased operating costs, as well as customer relations problems, any of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We may need to undertake additional restructuring actions in the future.

We have previously recognized restructuring charges in response to slowdowns in demand for our products and in conjunction with the implementation of initiatives to reduce costs and improve efficiency of our operations. Most recently, we have undertaken a number of initiatives to support the integration of ARRIS, which include mostly workforce reductions. In the past, we have undertaken initiatives to support the integration of other acquisitions, which included the closure of certain domestic and international manufacturing facilities and various other workforce reductions. As a result of the continued integration efforts related to the acquisition of ARRIS, changes in business conditions and other developments, we may need to initiate additional restructuring actions that could result in workforce reductions and restructuring charges, which could adversely and materially affect our cash flows.

Competitive Risks

Our business is dependent on third party capital spending for data, communication and entertainment networks, and reductions in such capital spending could adversely affect our business.

Our performance is dependent on third parties' capital spending for constructing, rebuilding, maintaining or upgrading data, communication and entertainment networks, which can be volatile and difficult to forecast. Capital spending in the communications industry is cyclical and can be curtailed or deferred on short notice. A variety of factors affect the timing and amount of capital spending in the communications industry, including:

- competing technologies;
- general economic and market conditions;
- foreign currency fluctuations;
- seasonality of outside deployments;
- timing and adoption of the global rollout of new technologies;
- customer-specific financial conditions;
- changes in customer preferences or requirements;
- availability and cost of capital;
- governmental regulation;
- demand for network services;

- competitive pressures, including pricing pressures;
- customer acceptance of new services offered;
- industry consolidation; and
- real or perceived trends or uncertainties in these factors.

We have experienced a decrease in demand for certain of our products as a result of the COVID-19 pandemic in 2020 and this could continue in the near term. For a more complete discussion of our risks related to COVID-19, see the risk factor under “General Risk Factors” in this Item 1A, Risk Factor section, “The current pandemic of the novel coronavirus, or COVID-19, and any other future public health crisis, could materially adversely affect our business, financial condition, results of operations and cash flows.” As a result of these factors, we may not be able to maintain or increase our sales in the future, and our business, financial condition, results of operations and cash flows could be materially and adversely affected.

A substantial portion of our business is derived from a limited number of key customers and channel partners.

Our customer base includes direct customers, original equipment manufacturers (OEMs) and channel partners, which include distributors, system integrators, value-added resellers and sales representatives. For the year ended December 31, 2020, we derived approximately 17% of our consolidated net sales from our top two direct customers. Our largest customer, Comcast, accounted for approximately 11% of our consolidated net sales. The concentration of our net sales with these key customers subjects us to a variety of risks, including:

- lower sales that could result from the loss of one or more of our key customers;
- dependency on customers with substantial purchasing power and leverage in negotiating contractual obligations as well as the operational structure of the relationship, resulting in lower net sales and gross profit;
- less efficient operations that could result in higher costs from an inability to accurately forecast and plan for volatile spending patterns of key customers;
- financial difficulties experienced by one or more of our key customers that could result in reduced purchases of our products and/or delays or difficulties in collecting accounts receivable balances;
- election by our key customers to purchase products from our competitors in order to diversify their supplier base and dual-source key products, resulting in reduced purchases of our products; and
- reductions in inventory levels held by channel partners and OEMs, which may be unrelated to purchasing trends by end customers.

We are also exposed to similar risks to the extent that we have significant indirect sales to one or more end-users of our products, who may also be a direct customer.

We generally have no minimum purchase commitments with any of our distributors, value-added resellers, operators or OEMs or other customers, and our contracts with these parties generally do not prohibit them from purchasing or offering products or services that compete with ours. We have historically experienced variability in the level of purchases by our key customers and expect similar variability that could affect future sales. Any significant reduction in sales to these customers, including as a result of the inability or unwillingness of these customers to continue purchasing our products, could materially and adversely affect our business, financial condition, results of operations and cash flows.

We face competitive pressures with respect to all our major product groups.

Competition in our industry depends on a number of factors, including: innovative product and service solution offerings; the ability to adapt to changing markets and customer preferences; product and service quality; timing of the introduction of new products and services; speed of delivery; pricing; and customer service, including the total customer experience. In each of our major product groups, we compete with a substantial number of foreign and domestic companies, some of which have greater financial, technical, marketing and other resources or lower operating costs. They may also have broader product offerings and market focus. This gives many of these enterprises a competitive advantage to withstand any significant reduction in capital spending by customers in our markets over the long term. Further, our industry continues to consolidate, and the combination of any of our competitors could further increase these advantages and result in competitors with broader market presence.

Some competitors may be able to bundle their products and services together and may be capable of delivering more complete solutions that better meet customer preferences than we are able to provide, which may cause us to lose sales opportunities and revenue. Competitors' actions, such as price reductions, acceptance of high-risk contractual terms or the introduction of new, innovative products and services, and the use of exclusively price-driven auctions by customers have caused lost sales opportunities in the past and may cause us to lose sales opportunities in the future.

The rapid technological changes occurring in the communications industry could also lead to the entry of new competitors against whom we may not be able to compete successfully. For example, as networks become more virtualized, the functionality of our products is at risk of being subsumed by competitors who utilize software to provide the same functions as our products. A related trend that could affect us is the emerging interest in DAA, which disaggregates some of the functions of the CCAP and the access and transport platforms to enable deployment of these functions in ways that could reduce traditional operator capital expenditures in hybrid fiber-coaxial. We have developed and deployed a line of DAA products, but some operators may not be aligned on the specific implementations of DAA and we could lose market share to competitors. Service providers also have the goal of virtualizing CCAP management and control functions as they deploy DAA, and although we are developing a fully virtualized CCAP product, this could potentially enable new competitors to enter the market and reduce operator dependence on our products. As there is technology evolution or transformation within the industry, be it DOCSIS 4.0 or PON, there is risk that our market position would be weakened. If any of our competitors' products or technologies were to become the industry standard, our business would be negatively affected.

The continued industry move toward open standards may result in an increase in competition for our products that may adversely impact our future revenues and margins. In addition, many of our customers participate in "technology pools" and increasingly request that we donate a portion of our source code used by customers to these pools, which may impact our ability to recapture the R&D investment made in developing such code. We believe that we will be increasingly required to work with third-party technology providers. As a result, we expect the shift to more open standards may require us to license software and other components indirectly to third parties via various open-source or royalty-free licenses. In some circumstances, our use of such open-source technology may include technology or protocols developed by standards settings bodies, other industry forums or third-party companies. The terms of the open-source licenses granted by such parties, or the granting of royalty-free licenses, may limit our ability to commercialize products that utilize such technology, which could have a material adverse effect on our results.

In some instances, our customers themselves may also be our competition in other business areas. Some of our customers may develop their own software requiring support within our products and/or may design and develop products of their own that are produced to their own specifications directly by a contract manufacturer. Further, if we are unable to transform our business processes to support changing customer expectations and deliver a superior total customer experience, we may lose sales opportunities in the future.

We cannot assure you that we will continue to compete successfully with our existing competitors or with new competitors. If we are unable to compete in any of our markets at the same level as we have in the past or are forced to reduce the prices of our products in order to continue to be competitive, our business, financial condition, results of operations and cash flows could be materially and adversely affected.

Our ability to sell our products is highly dependent on the quality of our support and services offerings after the sale, and our inability to execute after the sale would have a material adverse effect on our business.

After our products are deployed, our channel partners and end customers depend on our support organization to resolve any issues relating to our products. A high level of support is important for the successful marketing and sale of our products. In many cases, our channel partners provide support directly to our end customers. We do not have complete control over the level or quality of support provided by our channel partners. These channel partners may also provide support for other third-party products, which may potentially distract resources from support for our products. If we and our channel partners do not effectively assist our end customers in deploying our products, quickly resolving post-deployment issues and provide effective ongoing support, it would adversely affect our ability to sell our products to existing end customers and could harm our reputation with potential end customers. In some cases, we guarantee a certain level of performance to our channel partners and end customers, which could prove to be resource-intensive and expensive for us to fulfill if unforeseen technical problems arise.

Many of our service provider and large enterprise end customers have more complex networks and require higher levels of support than our smaller end customers. If our support organization fails to meet the requirements of our service provider or large enterprise end customers, it may be more difficult to execute on our strategy to increase our sales to large end customers. In addition, given the extent of our international operations, our support organization faces challenges, including those associated with delivering support, training and documentation in languages other than English. Our failure to maintain high-quality support and services would have a material adverse effect on our business, financial condition, results of operations and cash flows.

Changes to the regulatory environment in which our customers operate and changes in or uncertainty about government funded programs may negatively impact our business.

The telecommunications and cable television industries are subject to significant and changing federal and state regulation, both in the U.S. and other countries. Many of our customers are subject to various rules and regulations as Internet service providers and changes to such rules and regulations could adversely impact our customers' decisions regarding capital spending. Some of our customers include agencies of the U.S. federal government as well as educational institutions that receive funding from the U.S. federal government. We, as well as some of our customers, also participate in and benefit from government funded programs that encourage the development of network infrastructures. Changes in government programs in our industry or uncertainty regarding future changes could adversely impact our customers' decisions regarding capital spending, which could decrease demand for our products and could materially and adversely affect our business, financial condition, results of operations and cash flows.

Operational Risks

If our integrated global manufacturing operations suffer production or shipping delays, we may have difficulty meeting customer demands.

Disruption of our ability to produce at or distribute from our manufacturing or contract manufacturing facilities could adversely affect our ability to manufacture products at our other manufacturing or contract manufacturing facilities in a cost-effective and timely manner. For example, the COVID-19 pandemic negatively impacted our results in 2020 due to supply constraints primarily related to the shut-down of our factories in Suzhou, China in the first quarter of 2020. For a more complete discussion of our risks related to the COVID-19 pandemic, see the risk factor below under "General Risk Factors" in this Item 1A, "The current pandemic of the novel coronavirus, or COVID-19, and any other future public health crisis, could materially adversely affect our business, financial condition, results of operations and cash flows." Also, some of our manufacturing and contract manufacturing facilities rely on aging production equipment and information technology infrastructure, and if we fail or our contract manufacturers fail to properly maintain or update this equipment, it could affect our ability to manufacture or ship products. Other disruptions, including labor disturbances, fire, electrical outage, natural disaster, acts of violence or terrorism, shipping interruptions or some other catastrophic event could adversely affect our ability to manufacture products at our manufacturing or contract manufacturer facilities in a cost-effective and timely manner, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our future success depends on our ability to anticipate and adapt to changes in technology and customer preferences and develop, implement and market innovative solutions.

Many of our markets are characterized by rapid advances in information processing and communications capabilities that require increased transmission speeds and density and greater bandwidth. These advances require significant investments in R&D in order to improve the capabilities of our products and services and develop new offerings or solutions that will meet the needs and preferences of our customers. There can be no assurance that our investments in R&D will yield marketable product or service innovations.

We may not be successful in our ongoing innovation efforts if, among other things, our products and services are not cost effective, brought to market in a timely manner, compliant with evolving industry standards, accepted in the market or recognized as meeting customer requirements. We could experience a material adverse effect on our business, financial condition, results of operations and cash flows if we are not successful in our ongoing innovation efforts.

As our products become more complex and customer preferences continue to change, we may encounter difficulties in meeting customer preferences, including performance, service and delivery expectations. Developing our products is expensive, complex and involves uncertainties. Each phase in the development of our products presents serious risks of failure, rework or delay, any one of which could impact the timing and cost-effective development of such product and could jeopardize end customer acceptance of the product. We have experienced in the past, and may in the future experience, design, manufacturing, marketing and other difficulties that could delay or prevent the development, introduction or marketing of new products and enhancements. Any such difficulties or delays could have a material adverse effect on our results of operations, financial condition and cash flows.

If we do not stay current with product life cycle developments, our business may suffer.

To compete successfully, we must continue to innovate in anticipation of both our customers' needs and developing industry trends, which require us to quickly design, develop, manufacture and sell new or enhanced products that provide increasingly higher levels of performance and reliability. If we do not have competitively priced, market-accepted products available to meet our customers' planned roll-out of new technologies, we may miss a significant opportunity and our business, financial condition, results of operations and cash flows could be materially and adversely affected.

The introduction of new or enhanced products requires that we carefully manage the transition from older products to minimize disruption in customer ordering practices and ensure that new products can be timely delivered to meet our customers' demand. If we are not able to support our customers in an effective and cost-efficient manner as they advance from older generation networks or as they expand the capacity of their networks, our business will suffer.

Furthermore, there are several major trends that we expect to continue to impact the enterprise market and product life cycles, including the shift to 5G, enterprises shifting toward mobility indoors and adjusting in-building cabling designs to support Wi-Fi, more access points and in-building cellular applications. Due to significant increases in data traffic and migrations of applications to the cloud, enterprises are also shifting spending toward multi-tenant data centers and hyperscale cloud service providers, which offer cloud data centers services as a replacement to in-house corporate data centers. As a result, there is growing demand for fiber solutions and decelerating demand for copper solutions. If we are unable to continue to support customers in these transitions, or if sales of copper products decline faster than expected, we could experience a material adverse effect on our business, financial condition, results of operations and cash flows.

In order to stay current with product life cycle developments, we have formed strategic relationships with leading technology companies to provide us with early access to technology that we believe will help keep us at the forefront of our industry. Our strategic alliances are generally based on business relationships that have not been the subject of written agreements expressly providing for the alliance to continue for a significant period of time, and the loss of any such strategic relationship could have a material adverse effect on our business and results of operations.

If our products do not effectively interoperate with cellular networks and mobile devices, future sales of our products could be negatively affected.

Many of our products are designed to interoperate with cellular networks and mobile devices using Wi-Fi technology. These networks and devices have varied and complex specifications. As a result, we must ensure that our products interoperate effectively with these existing and planned networks and devices. To meet these requirements, we must continue development and testing efforts that require significant capital and employee resources. We may not accomplish these development efforts quickly or cost-effectively, or at all. If our products do not interoperate effectively, orders for our products could be delayed or cancelled, which would harm our revenue, operating results and reputation, potentially resulting in the loss of existing and potential end customers. The failure of our products to interoperate effectively with cellular networks or mobile devices may result in significant warranty, support and repair costs, divert the attention of our engineering personnel from our product development efforts and cause significant customer relations problems. In addition, our end customers may require our products to comply with new and rapidly evolving security or other certifications and standards. If our products are late in achieving or fail to achieve compliance with these certifications and standards, or our competitors first achieve compliance with these certifications and standards, such end customers may not purchase our products, which would harm our business, operating results, financial condition and cash flows.

If our service offerings or products, including material purchased from our suppliers, have quality or performance issues, our business may suffer.

Our business depends on delivering products and services of consistently high quality. Many of our solutions are highly complex, and testing procedures used by us and our customers are limited to evaluating them under likely and foreseeable failure scenarios. Many of our products include both hardware and software components. It is not unusual for software, especially in earlier versions, to contain bugs that can unexpectedly interfere with expected operations. For various reasons, once deployed, our products may fail to perform as expected. Performance issues could result from faulty design, defective raw materials or components purchased from suppliers, problems in manufacturing or installation errors. We have experienced such performance issues in the past and remain exposed to such performance issues in the future. In some cases, recall of some or all affected products, product redesigns or additional capital expenditures may be required to correct a defect; and depending on the number of products affected, the cost of fixing or replacing such products could have a material impact on our operating results.

In some cases, we are dependent on a sole supplier for components used in our products. Defects in sole-sourced components subject us to additional risk of being able to quickly address any product issues or failures experienced by our customers as a result of the component defect and could delay our ability to deliver new products until the defective components are corrected or a new supplier is identified and qualified. This could increase our costs in resolving the product issue, result in decreased sales of the impacted product or damage our reputation with customers, any of which could negatively impact our operating results.

Hardware or software defects could also permit unauthorized users to gain access to our customers' networks and/or a consumer's home network. In addition to potentially damaging our reputation with customers, such defects may also subject us to claims for damages under agreements with our customers and fines by regulatory authorities.

We offer warranties on most products, the terms and conditions of which depend upon the product subject to the warranty. In many cases, we also indemnify our customers against damages or losses that might arise from certain claims relating to our products and services. Future claims may have a material adverse effect on our business, financial condition, results of operations and cash flows. Any significant or systemic product or service failure could also result in lost future sales as a result of reputational damage.

Our products have been deployed in many different locations and user environments and are capable of providing services and connectivity to many different types of devices operating a variety of applications. The ability of our products to operate effectively can be negatively impacted by many different elements unrelated to our products. For example, a user's experience may suffer from an incorrect setting in a Wi-Fi device. Although certain technical problems experienced by users may not be caused by our products, users often may perceive them to be the underlying cause of poor performance of the wireless network. This perception, even if incorrect, could harm our business and reputation. Similarly, a high-profile network failure may be caused by improper operation of the network or failure of a network component that we did not supply, but service providers may perceive that our products were implicated, which, even if incorrect, could harm our business, financial condition, results of operations and cash flows.

We depend on cloud computing infrastructure operated by third parties and any disruption in these operations could adversely affect our business.

For certain of our service offerings, in particular our Wi-Fi-related cloud services, we rely on third parties to provide cloud computing infrastructure that offers storage capabilities, data processing and other services. We currently operate our cloud-dependent services using Amazon Web Service (AWS), Google Compute Engine (GCE) or Microsoft Azure. We cannot easily switch our AWS, GCE or Azure operations to another cloud provider. Any disruption of or interference with our use of these cloud services would impact our operations and our business could be adversely impacted.

Problems faced by our third party cloud services with the telecommunications network providers with whom we or they contract or with the systems by which our telecommunications providers allocate capacity among their customers, including us, could adversely affect the experience of our end customers. If AWS and GCE are unable to keep up with our needs for capacity, this could have an adverse effect on our business. Any changes in third party cloud services or any errors, defects, disruptions or other performance problems with our cloud-based applications, could adversely affect our reputation and may damage our end customers' stored files or result in lengthy interruptions in our services. Interruptions in our services might adversely affect our reputation and operating results, cause us to issue refunds or service credits, subject us to potential liabilities or result in contract terminations.

Our business depends on effective management information systems.

We rely on effective management information systems for critical business operations, to support strategic business decisions and to maintain a competitive edge in the marketplace. We rely on our enterprise resource planning (ERP) systems to support critical business operations such as processing sales orders and invoicing, manufacturing, shipping, inventory control, purchasing and supply chain management, human resources and financial reporting. In 2020, we began the upgrade of our ERP software to a newer, cloud-based version. We expect the first phase to be complete in early 2021. We may experience difficulties as we transition to the upgraded systems, including loss or corruption of data, delayed shipments, decreases in productivity as personnel implement and become familiar with new systems and processes, unanticipated expenses (including increased costs of implementation or costs of conducting business) and lost revenue. Difficulties in implementing the upgrade or significant system failure could disrupt our operations, divert management's attention and have an adverse effect on our capital resources, financial condition, results of operations or cash flows.

We also rely on management information systems to produce information for business decision-making and planning and to support e-commerce activities. Failure to maintain an adequate digital platform or to make additional investment in our digital platform to support e-commerce activities and improve our customer experience could have a material adverse impact on our business through lost sales opportunities.

If we are unable to maintain our management information systems, including our IT infrastructure, to support critical business operations, produce information for business decision-making activities and support digital customer experience activities, we could experience a material adverse impact on our business or an inability to timely and accurately report our financial results.

Cyber-security incidents, including data security breaches, ransomware or computer viruses, could harm our business by exposing us to various liabilities, disrupting our delivery of products and services and damaging our reputation.

We rely extensively on our management information technology systems and those of third parties to operate our business and store proprietary information about our products and intellectual property. Additionally, we and others acting on our behalf receive, process, store and transmit confidential data, including “personally identifiable information,” with respect to employees, vendors, customers and others. As the recent rise in cybersecurity incidents around the world indicates, all management information technology systems are vulnerable. Despite the security controls we have in place, our facilities, systems and procedures, and those of our third party service providers, are at risk of security breaches, acts of vandalism, ransomware, software viruses, misplaced or lost data, programming and/or human errors or other similar events. In particular, unauthorized access to our computer systems or stored data could result in the theft or improper disclosure of proprietary, confidential, sensitive or personal information, the deletion or modification of records or interruptions in our operations. These cybersecurity risks increase when we transmit information from one location to another, including transmissions over the Internet or other electronic networks. Any future significant compromise or breach of our data security, whether external or internal, or misuse of employee, vendor, customer, or Company data, could result in significant costs, lost sales, fines, lawsuits, lost customers and damage to our reputation. We employ a variety of security breach countermeasures and security controls designed to mitigate these risks, but we cannot guarantee that all breach attempts can be successfully thwarted by these measures as the sophistication of attacks increases. As cyber threats continue to evolve, we may be required to expend additional resources to mitigate new and emerging threats while continuing to enhance our information security capabilities or to investigate and remediate security vulnerabilities.

In addition, defects in some of the hardware or software we develop and sell, or in their implementation by our customers, could also result in unauthorized access to our customers’ and/or consumers’ networks. Any such events could result in theft of trade secrets and intellectual property; give rise to legal proceedings; cause us to incur increased costs for insurance premiums, security, remediation and regulatory compliance; subject us to civil and criminal penalties; expose us to liabilities to our customers, employees, vendors, governmental authorities or other third parties; allow others to unfairly compete with us; disrupt our delivery of products and services; expose the confidential information of our clients and others; and have a negative impact on our reputation, all of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Climate change may have a long-term impact on our business.

There are inherent climate change risks wherever business is conducted. The potential physical impacts of climate change on our operations are highly uncertain and would be particular to the geographic circumstances in areas in which we operate. These may include changes in rainfall and storm patterns and intensities, water shortages, changing sea levels and changing temperatures. These impacts may adversely impact the cost, production and financial performance of our operations. Climate-related events, including the increasing frequency of extreme weather events and their impact on critical infrastructure in the regions in which we operate, have the potential to disrupt our business, our third-party suppliers, and/or the business of our customers and may cause us to experience higher attrition, losses and additional costs to maintain or resume operations. CommScope aligns with the Global Reporting Initiative (GRI) standard and makes use of the Carbon Disclosure Project (CDP) platform, which is committed to aligning with the Task Force on Climate Related Financial Disclosures (TCFD) recommendations to accurately assess, take potential proactive action and report as appropriate. For additional information, see our Corporate Responsibility & Sustainability pages on the CommScope website: <https://www.commscope.com/About-Us/Corporate-Responsibility-and-Sustainability>.

Supply Chain Risks

Our dependence on commodities subjects us to cost volatility and potential availability constraints.

Our profitability may be materially affected by changes in the market price and availability of certain raw materials, most of which are linked to the commodity markets. The principal raw materials and components we purchase are made of metals such as copper, steel, aluminum or brass, plastics and other polymers and optical fiber. Fabricated copper, steel and aluminum are used in the production of coaxial and twisted pair cables, and polymers are used to insulate and protect cables. Prices for copper, steel, aluminum, fluoropolymers and certain other polymers derived from oil and natural gas have experienced significant volatility as a result of changes in the levels of global demand, supply disruptions and other factors. As a result, we have adjusted our prices for certain products and may have to adjust prices again in the future. Delays in implementing price increases or a failure to achieve market acceptance of price increases has in the past, and could in the future, have a material adverse impact on our results of operations. In an environment of falling commodities prices, we may be unable to sell higher-cost inventory before implementing price decreases, which could have a material adverse impact on our business, financial condition and results of operations.

We are dependent on a limited number of key suppliers for certain raw materials and components.

We are dependent on a limited number of key suppliers for certain of our raw material and component purchases, including certain memory and chip capacitors, polymers, copper rod, copper and aluminum tapes, fine aluminum wire, steel wire, optical fiber, circuit boards and other electronic components, subassemblies and modules. Certain of our suppliers are sole source suppliers and a number of our agreements with suppliers are short-term in nature.

Our reliance on sole or limited suppliers, particularly foreign suppliers, and our reliance on subcontractors involves several risks, including a potential inability to obtain an adequate supply of required materials, components and other products, and reduced control over pricing, quality, terms and conditions of purchase and timely delivery. Current limited supply of components in the memory and passives categories could impact our ability to deliver on a timely basis and increase overall product costs. We are currently experiencing extended lead times from certain of our key suppliers which could also impact our ability to deliver on a timely basis. Our key suppliers have experienced in the past, and could experience in the future, production, operational or financial difficulties, or there may be global shortages of certain raw materials or components we use. Our inability to find sufficient sources of supply on reasonable terms could impact our ability to manufacture products in a cost-effective manner, which could have a material adverse effect on our gross margin and results of operations. It could also affect our ability to ship products on a timely basis, which could damage relationships with current and prospective customers and potentially have a material adverse effect on our business.

We also source many of our components from international markets. Any changes in the laws and policies of the U.S. or other countries affecting trade is a risk to us. To the extent there are unfavorable changes imposed by the U.S. or other countries and/or retaliatory actions taken by trading partners, such as the addition of new tariffs or trade restrictions, we may experience material adverse impacts on earnings. For a more complete discussion of our risks related to tariffs and trade restrictions, see the risk factor, “Additional tariffs or a global trade war could increase the cost of our products, which could adversely impact the competitiveness of our products” under our “International Risk Factors” in this Item 1A. Risk Factors section.

Capacity constraints with respect to our internal facilities and/or existing or new contract manufacturers could have an adverse impact on our business.

We internally produce, both domestically and internationally, a portion of the components used in our finished products. We also rely on third-party contract manufacturers, both domestically and internationally, to produce certain products or key components of products. If we do not have sufficient production capacity, either through our internal facilities or independent contract manufacturers, or if we cannot ramp up capacity for complex products fast enough to meet customer demand, we may experience lost sales opportunities, lost market share and customer relations problems, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

If our contract manufacturers encounter production, quality, financial or other difficulties, we may experience difficulty in meeting customer demands.

We rely on unaffiliated contract manufacturers, both domestically and internationally, to produce certain products or key components of products. Our reliance on these contract manufacturers reduces our control over the manufacturing process and exposes us to risks, including reduced control over quality assurance, product costs and product supply and timing. Any manufacturing disruption by these contract manufacturers could severely impair our ability to fulfill orders. Our reliance on outsourced manufacturers also increases the potential for infringement or misappropriation of our intellectual property. If we are unable to manage our relationships with our contract manufacturers effectively, or if our contract manufacturers suffer delays or disruptions for any reason, including financial instability, labor disturbances or geopolitical instability, experience increased manufacturing lead-times, capacity constraints or quality control problems in their manufacturing operations, or fail to meet our future requirements for timely delivery, our ability to ship products to our customers may be impaired, and our business and operating results could be harmed.

These manufacturers typically fulfill our supply requirements on the basis of individual orders. In most cases, we do not have long-term contracts with our contract manufacturers that guarantee capacity, the continuation of particular pricing terms or the extension of credit limits. Accordingly, our contract manufacturers are not always obligated to continue to fulfill our supply requirements, which could result in supply shortages, and the prices we are charged for manufacturing services could be increased on short notice. In addition, as a result of fluctuating global financial market conditions, natural disasters or other causes, it is possible that any of our manufacturers could experience interruptions in production, cease operations or alter our current arrangements. If our manufacturers are unable or unwilling to continue manufacturing our products in required volumes, we will be required to identify one or more acceptable alternative manufacturers.

In the past, in response to uncertainty in the U.S. trade tariff environment, we transitioned manufacturing for certain impacted products to non-tariff countries. It is time-consuming and costly to mitigate these uncertainties, and future such changes in our contract manufacturers or manufacturing locations may cause significant interruptions in supply if the manufacturers have difficulty manufacturing products to our specifications. As a result, our ability to meet our scheduled product deliveries to our customers could be adversely affected, which could cause the loss of sales to existing or potential customers, delayed revenue or an increase in our costs. For a more complete discussion of our risks related to trade policies, see the risk factor “Additional tariffs or a global trade war could increase the cost of our products, which could adversely impact the competitiveness of our products” under “International Risks” in this Item 1A Risk Factors section.

Production interruptions for any reason, such as a natural disaster, pandemic/epidemic, capacity shortages or quality problems, at one of our manufacturers would negatively affect sales of our products that are manufactured by that manufacturer or utilize components produced by that manufacturer. Such difficulties could adversely affect our business, financial condition, results of operations and cash flows. For a more complete discussion of our risks related to the COVID-19 pandemic, see the risk factor, “The current pandemic of the novel coronavirus, or COVID-19, and any other future public health crisis, could materially adversely affect our business, financial condition, results of operations and cash flows.” under “General Risk Factors” in this Item 1A, Risk Factors section.

Financial Risks

Our substantial indebtedness could adversely affect our ability to raise additional capital to fund our operations, limit our ability to react to changes in the economy or our industry, expose us to interest rate risk to the extent of our variable rate debt and prevent us from meeting our financial obligations.

See Note 8 in the Notes to Consolidated Financial Statements included in this Form 10-K for additional details of our indebtedness. As of December 31, 2020, we had approximately \$9.7 billion of indebtedness. As of December 31, 2020, we had no outstanding loans under our asset-based revolving credit facility and the remaining availability was \$735.1 million, reflecting a borrowing base of \$766.9 million reduced by \$31.8 million of letters of credit. Our ability to borrow under our revolving credit facility depends, in part, on inventory, accounts receivable and other assets that fluctuate from time to time and may further depend on lenders’ discretionary ability to impose reserves and availability blocks. We have entered into certain hedging agreements to reduce our exposure to variable rate debt.

Our substantial indebtedness could have important consequences. For example, it could:

- limit our ability to obtain additional financing for working capital, capital expenditures, acquisitions, investments and other general corporate purposes;
- require a substantial portion of our cash flows to be dedicated to debt service payments and reduce the amount of cash flows available for working capital, capital expenditures, investments or acquisitions and other general corporate purposes;
- expose us to the risk of increased interest rates as the interest cost on a significant portion of our indebtedness is subject to changes in interest rates;
- place us at a competitive disadvantage compared to certain of our competitors who have less debt;
- hinder our ability to adjust rapidly to changing market conditions;
- limit our ability to secure adequate bank financing or our ability to refinance existing indebtedness in the future with reasonable terms and conditions, or at all; and
- increase our vulnerability to and limit our flexibility in planning for, or reacting to, a potential downturn in general economic conditions or in one or more of our businesses.

Our variable rate indebtedness currently uses LIBOR as a benchmark for establishing the rate. On July 27, 2017, the authority that regulates LIBOR announced that it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. In November 2020, this deadline was extended for the LIBOR rates used in our variable rate indebtedness until June 2023. The U.S. Federal Reserve, in conjunction with the Alternative Reference Rates Committee, is considering replacing U.S. dollar LIBOR with a newly created index, calculated with a broad set of short-term repurchase agreements backed by treasury securities, called the Secured Overnight Financing Rate. It is not possible to predict the effect of these changes, other reforms or the establishment of alternative reference rates in the United Kingdom (U.K.), the U.S. or elsewhere. These changes could require us to renegotiate certain of our variable rate indebtedness to address changes in the benchmark rates.

In addition, the indentures and credit agreements governing our indebtedness contain affirmative and negative covenants that limit our ability to engage in activities that may be in our long-term best interests. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of all of our debt.

Despite current indebtedness levels and restrictive covenants, we may still incur additional indebtedness that could further exacerbate the risks associated with our substantial financial leverage.

We may incur significant additional indebtedness in the future under the agreements governing our indebtedness. Although the indentures and the credit agreements governing our indebtedness contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of thresholds, qualifications and exceptions, and additional indebtedness incurred in compliance with these restrictions could be substantial. Additionally, these restrictions permit us to incur obligations that, although preferential to our common stock in terms of payment, do not constitute indebtedness.

To service our indebtedness and pay dividends on our preferred stock, we will require a significant amount of cash, and our ability to generate sufficient cash depends on many factors beyond our control.

Our operations are conducted through our global subsidiaries and our ability to make cash payments on our indebtedness and pay cash dividends on our preferred stock will depend on the level of earnings and distributable funds from our subsidiaries. Certain of our subsidiaries may have limitations or restrictions on paying dividends and otherwise transferring funds to us. Our ability to make cash payments on and to refinance our indebtedness will depend upon our financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to financial, business, legislative, regulatory and other factors beyond our control. We might not be able to achieve a level of cash flows from operating activities or transfer sufficient funds from our subsidiaries to permit us to pay the principal, premium, if any, and interest on our indebtedness and dividends on our preferred stock.

If we are unable to generate sufficient cash flow or are otherwise unable to obtain funds necessary to meet required payments of principal, premium, if any, and interest on our indebtedness or if we fail to comply with the various covenants in the instruments governing our indebtedness and we are unable to obtain waivers from the required lenders, we could be in default under the terms of the agreements governing such indebtedness. In the event of such default, the holders of our indebtedness could elect to declare all the funds borrowed to be due and payable, together with accrued and unpaid interest. The lenders under our revolving credit facility could elect to terminate their commitments, cease making further loans and institute foreclosure proceedings against our assets. As a result, we could be forced into bankruptcy or liquidation.

We may need to recognize additional impairment charges related to goodwill, identified intangible assets and fixed assets.

We have substantial balances of goodwill and identified intangible assets. As of December 31, 2020, goodwill and identified intangible assets represented approximately 66% of our total assets. We are required to test goodwill for possible impairment on the same date each year and on an interim basis if there are indicators of a possible impairment. In connection with an interim test of goodwill impairment in the second quarter of 2020, we recorded an impairment charge to goodwill of \$206.7 million. In addition, as of the October 2020 annual impairment test, the fair value of certain reporting units only modestly exceeded their carrying value and slight changes in significant assumptions or business factors could result in material impairment. In the future, indicators of impairment could exist for other reporting units as well, and we may incur another material charge against earnings relating to our remaining goodwill.

We are also required to evaluate identified intangible assets and fixed assets for impairment if there are indicators of a possible impairment. In the past, due to revisions in financial performance outlooks or deterioration in certain markets, we have recognized significant impairment charges on identified intangible assets and fixed assets. In the future, we may again determine that one or more of our long-lived assets is impaired and additional impairment charges may be recognized that could have a material adverse effect on our financial condition and results of operations.

The IRS may not agree ARRIS was a foreign corporation for U.S. federal income tax purposes.

Following the Pace combination, ARRIS was incorporated under the laws of England and Wales and a tax resident in the United Kingdom for U.K. tax purposes. There is a risk that the Internal Revenue Service does not agree that ARRIS was a foreign corporation for U.S. federal income tax purposes in periods prior to the Acquisition and we could be subject to substantial additional U.S. taxes. For U.K. tax purposes, ARRIS was expected to be treated as a U.K. tax resident for all periods prior to the Acquisition and following the Pace combination, regardless of how ARRIS was treated in the U.S. Therefore, if ARRIS was treated as a U.S. corporation for U.S. federal income tax purposes, we could be liable for both U.S. and U.K. taxes in certain periods prior to the Acquisition, which could have a material adverse effect on our financial condition, results of operations and cash flows.

Labor Related Risks

We may not be able to attract and retain key employees.

Our business depends upon our continued ability to hire and retain key employees. Effective succession planning is important to our long-term success. We depend on our senior management team and other key employees for strategic success. Some of our key employees have retired or are at or near retirement age, including a disproportionate amount of our workforce in key geographic areas who will reach retirement age in the next decade. Failure to ensure effective transfer of knowledge and smooth transitions involving key employees could hinder our strategic planning and execution.

Key employees include individuals in our sales force, operations management, engineers and skilled production workers at our operations around the world. Competition for skilled personnel and highly qualified managers in the industries in which we operate is intense. Our growth by acquisitions creates challenges in retaining employees as well. As the corporate culture evolves to incorporate new workforces, some employees may not find the new culture appealing. In addition, the pace of integration may cause retention issues with our workforce due to integration fatigue.

Furthermore, as our workforce ages, we are challenged to find and attract a younger population to replace them. Younger generations are motivated by progression and opportunity, which may be limited by our current employee population. In addition, many of our employees are highly experienced, skilled individuals who have extensive knowledge or relationships in our industry. As these employees leave CommScope, we may not be able to easily replicate their experience, knowledge and relationships. Difficulties in attracting or retaining employees with the necessary management, technical and financial skills needed to achieve our business objectives may limit our growth potential and may have a material adverse effect on our business, financial condition and results of operations.

Labor unrest could have a material adverse effect on our business, results of operations and financial condition.

Although none of our U.S. employees are represented by unions, a significant portion of our international employees are members of unions or subject to works' councils or similar statutory arrangements. We are required to consult with, and seek the consent or advice of, various employee groups or works' councils that represent our employees for any changes to our activities or employee benefits. Based on requests from two separate works councils in the European Union, we are required to negotiate, and are currently negotiating, an agreement for the establishment of a European Works Council that would serve as a representative body of our European workforce. Requirements to consult with such groups could have a significant impact on our flexibility in managing costs and responding to market changes. In addition, many of our direct and indirect customers and vendors have unionized workforces. Strikes, work stoppages or slowdowns experienced by us at our international locations or experienced by our customers or vendors could have a negative impact on us. Organizations responsible for manufacturing or shipping our products may also be impacted by labor disruptions. Any interruption in the delivery of our products could harm our reputation with our customers, reduce demand for our products, increase costs and have a material adverse effect on us.

International Risks

Our significant international operations expose us to economic, political and other risks.

We have significant international sales, manufacturing, distribution and R&D operations. Our major international manufacturing, distribution and R&D facilities are located in Australia, Belgium, China, the Czech Republic, France, Germany, India, Ireland, Mexico, Singapore and the United Kingdom. For the year ended December 31, 2020, international sales represented 39% of our consolidated net sales. In general, our international sales have lower gross margin percentages than our domestic sales. To the extent international sales increase as a percentage of our net sales, our overall gross margin percentages may decline.

Our international sales, manufacturing, distribution and R&D operations are subject to the risks inherent in operating abroad, including, but not limited to, coordinating communications among and managing international operations; currency exchange rate fluctuations; economic and political destabilization; restrictive actions by foreign governments; wage inflation; nationalizations; the laws and policies of the U.S. and other countries affecting trade, anti-bribery, foreign investment and loans; foreign tax laws, including the ability to recover amounts paid as value-added and similar taxes; potential restrictions on the repatriation of cash; reduced protection of intellectual property; longer customer payment cycles; compliance with local laws and regulations; volatile geopolitical turmoil, including popular uprisings, regional conflicts, terrorism, and war; shipping interruptions; major health concerns (such as pandemics and infectious diseases); inflexible labor contracts or labor laws in the event of business downturns; and economic boycott for doing business in certain countries.

A significant portion of our products sold in the U.S. are manufactured outside the U.S. To the extent there are changes in U.S. trade policies, such as significant increases in tariffs or duties for goods brought into the U.S., our competitive position may be adversely impacted and the resulting effect on our earnings could be material. For a more complete discussion of our risks related to trade policies, see the risk factor, “Additional tariffs or a global trade war could increase the cost of our products, which could adversely impact the competitiveness of our products” under “International Risks” in this Item 1A, Risk Factors section.

Risks related to fluctuations in foreign currency rates can impact our sales, results of operations, cash flows and financial position. Our foreign currency risk exposure is mainly concentrated in Chinese yuan, euro, British pound sterling, Mexican peso, Australian dollar, Brazilian real, South African rand, Indian rupee and Czech koruna. We manage our foreign currency rate risks through regular operating and financing activities and use derivative financial instruments such as foreign exchange forward contracts. There can be no assurance that our risk management strategies will be effective or that the counterparties to our derivative contracts will be able to perform. In addition, foreign currency rates in many of the countries in which we operate have at times been extremely volatile and unpredictable. We may choose not to hedge or determine we are unable to effectively hedge the risks associated with this volatility. In such cases, we may experience declines in sales and adverse impacts on earnings and such changes could be material.

Additional tariffs or a global trade war could increase the cost of our products, which could adversely impact the competitiveness of our products.

There is currently significant uncertainty about the future relationship between the U.S. and various other countries, most significantly China, with respect to trade policies and tariffs. The former U.S. administration called for substantial changes to U.S. foreign trade policy with respect to China and other countries, including the possibility of imposing greater restrictions on international trade and significant increases in tariffs on goods imported into the U.S. The new administration could have a different approach to U.S. foreign trade policy with China as well as other countries but there remains much uncertainty.

This uncertainty about the future relationship between the U.S. and certain of its trading partners may reduce trade between the U.S. and other nations, including countries in which we currently operate. Changes in policy or continued uncertainty could depress economic activity and restrict our access to suppliers or customers. The tariffs implemented on our products (or on materials, parts or components we use to manufacture our products) by the former U.S. administration increased the cost of our products manufactured in the U.S. and imported into the U.S. If additional tariffs or trade restrictions are implemented on our products (or on materials, parts or components we use to manufacture our products) by the U.S. or other countries, the cost of our products manufactured in China, Mexico or other countries and imported into the U.S. or other countries could increase further. We expect to continue to pass along some of these costs to our customers, but the increased cost could adversely affect the demand for products. We have been successful in the past in shifting the manufacturing locations for the impacted products, but this takes time and results in additional one-time costs and these alternative locations may have higher ongoing manufacturing costs. These cost increases could adversely affect the demand for our products and/or reduce margins, which could have a material adverse effect on our business and our earnings.

Our international operations expose us to increased challenges in complying with anti-corruption laws and regulations of the U.S. government and various other international jurisdictions.

We are required to comply with the anti-corruption laws and regulations of the U.S. government and various other international jurisdictions, and our failure to comply with these laws and regulations may expose us to significant liabilities. These laws and regulations may apply to companies, individual directors, officers, employees and agents, and may restrict our operations, trade practices, investment decisions and partnering activities. In particular, we are subject to U.S. and foreign anti-corruption laws and regulations, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act. Violations of these legal requirements are punishable by significant criminal fines and imprisonment, civil penalties, disgorgement of profits, injunctions, debarment from government contracts and other remedial measures. We have established policies, procedures and internal controls designed to assist us and our personnel in complying with applicable U.S. and international anti-corruption laws and regulations. However, our employees, subcontractors or channel partners could take actions that violate these requirements. In addition, some of the international jurisdictions in which we operate have elevated levels of corruption. As a result, we are exposed to an increased risk of violating anti-corruption laws. Violation of anti-corruption laws could adversely affect our reputation, business, financial condition, results of operations and cash flows, and such effects could be material.

We are subject to governmental export and import controls and sanctions programs that could subject us to liability or impair our ability to compete in international markets.

Certain of our products, including purchased components of such products, are subject to export controls and may be exported only with the required export license or through an export license exemption. In addition, we are required to comply with certain U.S. and foreign import and customs rules, sanctions and embargos. If we were to fail to comply with applicable export licensing, customs regulations, economic sanctions and other laws, we could be subject to substantial civil and criminal penalties, including fines, the incarceration of responsible employees and managers and the possible loss of export or import privileges. In addition, if our distributors fail to obtain appropriate import, export or re-export licenses or permits, we may also be adversely affected through reputational harm and penalties. Obtaining the necessary export license for a particular sale may be time-consuming and may result in a delay or loss of sales opportunities.

Furthermore, export control laws and economic sanctions prohibit the shipment of certain products to embargoed or sanctioned countries, governments and persons. While we train our employees to comply with these regulations and have systems in place designed to prevent compliance failures, we cannot assure you that a violation will not occur, whether knowingly or inadvertently. Any such shipment could have negative consequences, including government investigations, penalties, fines, civil and criminal sanctions and reputational harm.

Any change in export or import regulations, economic sanctions or related legislation, shift in the enforcement or scope of existing regulations or change in the countries, governments, persons or technologies targeted by such regulations could result in our decreased ability to export, import or sell our products to existing or potential customers, particularly those with international operations. Any limitation on our ability to export, import or sell our products could adversely affect our business, financial condition, results of operations and cash flows, and such effects could be material.

Litigation and Regulatory Risks

We may not be successful in protecting our intellectual property and in defending against claims that we are infringing on the intellectual property of others and such actions may be costly.

We may encounter difficulties and significant costs in protecting our intellectual property rights or obtaining rights to additional intellectual property to permit us to continue or expand our business. Other companies, including some of our largest competitors, hold intellectual property rights in our industry and the intellectual property rights of others could inhibit our ability to introduce new products unless we secure necessary licenses on commercially reasonable terms.

In the past, we have initiated litigation in order to enforce patents issued or licensed to us or to determine the scope and/or validity of a third party's patent or other proprietary rights, and we may initiate similar litigation in the future. We also have been and may in the future be subject to lawsuits by third parties seeking to enforce their own intellectual property rights, including against certain of the products or intellectual property that we have acquired through acquisitions. Any such litigation, regardless of outcome, could be costly and could subject us to significant liabilities or require us to cease using proprietary third party technology. In addition, the payment of any damages or any necessary licensing fees or indemnification costs associated with a patent infringement claim could be material and could also materially adversely affect our operating results. Such litigation can also be a significant distraction to management.

In certain markets, we may be required to address counterfeit versions of our products. We may incur significant costs in pursuing the originators of such counterfeit products and, if we are unsuccessful in eliminating them from the market, we may experience a reduction in the value of our products and/or a reduction in our net sales.

Because of the nature of information that may pass through or be stored on our solutions or networks, we, our vendors and our end customers may be subject to complex and evolving U.S. and foreign laws and regulations regarding privacy, data protection and other related matters.

Globally, there has been an increase in laws and regulatory action concerning privacy-related matters. Some of these laws impose requirements for the handling of personal data, including data of employees, consumers and business contacts. Several U.S. states have adopted legislation requiring companies to protect the security of personal information that they collect from consumers over the Internet, and more states may adopt similar legislation. For example, the California Consumer Privacy Act, which went into effect on January 1, 2020, subjects us to stricter obligations, greater fines and more private causes of action related to data security. The California Privacy Rights Act (CPRA), which is effective in 2023, amends and further expands the California Consumer Privacy Act. Also, many jurisdictions have enacted or are enacting laws requiring companies to notify regulators or individuals of data security incidents involving certain types of personal data. These mandatory disclosures regarding security incidents often lead to widespread negative publicity. Any security incident, whether actual or perceived, could harm our reputation, erode customer confidence in the effectiveness of our data security measures, negatively impact our ability to attract or retain customers, or subject us to third party lawsuits, regulatory fines or other action or liability, which could materially and adversely affect our business and operating results.

Foreign data protection, privacy and other laws and regulations can be more restrictive than those in the U.S. For example, the E.U.'s General Data Protection Regulation (GDPR), which became effective in May 2018, was designed to harmonize data privacy laws across Europe, to protect all E.U. citizens' data privacy, empower E.U. citizens with respect to their personal data and to reshape the way organizations across the region approach data privacy. Compliance with GDPR has required changes to products and service offerings, internal and external software systems, including our websites, and changes to many company processes and policies. Failure to comply with GDPR could cause significant penalties and loss of business. Recent judicial rulings in Europe about GDPR have invalidated the E.U.-U.S. privacy shield framework, which is the mechanism relied upon by some of our vendors for personal data transfers out of the E.U. Additionally, these rulings require companies like ours to assess their personal data transfers from the E.U. to determine whether the protections in the U.S. or any country without an adequacy determination meet E.U. standards in the context of the specific transfer. A European data protection authority could disagree with our assessment of such transfers, resulting in penalties or required changes in how we transfer data within our company.

In addition, some countries are considering or have passed legislation requiring local storage and processing of data. For example, Brazil and India have each adopted such laws that became effective in January 2020. These new and proposed laws could increase the cost and complexity of offering our solutions or maintaining our business operations in those jurisdictions. The introduction of new solutions or expansion of our activities in certain jurisdictions may subject us to additional laws and regulations. Our channel partners and end customers also may be subject to such laws and regulations in the use of our products and services.

These U.S. federal and state and foreign laws and regulations, which often can be enforced by private parties or government entities, are constantly evolving. In addition, the application and interpretation of these laws and regulations are often uncertain, may be interpreted and applied inconsistently from jurisdiction to jurisdiction and may be contradictory with each other. For example, a government entity in one jurisdiction may demand the transfer of information forbidden from transfer by a government entity in another jurisdiction. If our actions were determined to be in violation of any of these disparate laws and regulations, in addition to the possibility of fines, we could be ordered to change our data practices, which could have an adverse effect on our business and results of operations and financial condition. There is also a risk that we, directly or as the result of a third party service provider we use, could be found to have failed to comply with the laws or regulations applicable in a jurisdiction regarding the collection, handling, transfer, disposal or consent to the use of personal data, which could subject us to fines or other sanctions, as well as adverse reputational impact.

Some states and countries are considering or have introduced laws and regulations requiring minimum or particular security controls be incorporated into devices that connect to the internet (so called “Internet of Things Security laws”). Where products we manufacture are considered in scope for some of these laws and regulations, compliance obligations or customer contracts may necessitate modification of existing product features and specifications or make inventory obsolete. Inconsistencies in these laws can introduce complexity into our design, manufacturing and inventory management processes.

Compliance with these existing and proposed laws and regulations can be costly and require significant management time and attention, and failure to comply can result in negative publicity and subject us to inquiries or investigations, claims or other remedies, including fines or demands that we modify or cease existing business practices. Customers may demand or request additional functionality in our products or services that they believe are necessary or appropriate to comply with such laws and regulations, which can cause us to incur significant additional costs and can delay or impede the development of new solutions. In addition, there is a risk that failures in systems designed to protect private, personal or proprietary data held by us or our customers using our solutions will allow such data to be disclosed to or seen by others, resulting in application of regulatory penalties, enforcement actions, remediation obligations, private litigation by parties whose data were improperly disclosed or claims from our customers for costs or damages they incur. There can be no assurance that the limitations of liability in our contracts would be enforceable or adequate or would otherwise protect us from any such liabilities or damages with respect to any particular claim. Our existing general liability insurance coverage and coverage for errors and omissions may not continue to be available on acceptable terms or may not be available in sufficient amounts to cover one or more large claims, or our insurers may deny coverage as to any future claim. The successful assertion of one or more large claims against us that exceeds available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business, financial condition, results of operations and cash flow.

Compliance with current and future environmental laws and potential environmental liabilities may have a material adverse impact on our business, financial condition and results of operations.

We are subject to various federal, state, local and foreign environmental laws and regulations governing, among other things, discharges to air and water, management of regulated materials, handling and disposal of solid and hazardous waste and investigation and remediation of contaminated sites. In addition, we are subject to laws and regulations regarding the types of substances allowable in certain of our products and the handling of our products at the end of their useful life. Because of the nature of our business, we have incurred and will continue to incur costs relating to compliance with or liability under these environmental laws and regulations and these costs could be material. In addition, new laws and regulations, new or different interpretations of existing laws and regulations, expansion of existing legal requirements related to our products, the discovery of previously unknown contamination or the imposition of new remediation or discharge requirements could require us to incur costs or become the basis for new or increased liabilities that could have a material adverse effect on our financial condition.

Efforts to regulate emissions of greenhouse gases (GHGs), such as carbon dioxide, are continuing to evolve in the U.S. and other countries where we operate, and this could increase the cost of raw materials, production processes and transportation of our products. If we are unable to comply with such regulations or sufficiently increase prices or otherwise reduce costs to offset the increased costs of compliance, GHG regulation could have a material adverse effect on our business, financial condition, results of operations and cash flow. Certain environmental laws impose strict and, in some circumstances, joint and several liability on current or former owners or operators of a contaminated property, as well as companies that generated, disposed of or arranged for the disposal of hazardous substances at a contaminated property, for the costs of investigation and remediation of the contaminated property. Our present and past facilities have been in operation for many years and over that time, in the course of those operations, hazardous substances and wastes have been used, generated and occasionally disposed of at such facilities, and we have disposed of waste products either directly or through third parties at numerous disposal sites. Consequently, it has been necessary to undertake investigation and remediation projects at certain sites and we have been, and may in the future be, held responsible for a portion of the investigation and clean-up costs at these sites and our share of those costs may be material.

A number of governments or governmental bodies have also introduced or are contemplating regulatory changes in response to various climate change interest groups and the potential impact of climate change. Legislation and increased regulation regarding climate change could impose significant costs on us, our venture partners, and our suppliers, including costs related to increased energy requirements, capital equipment, environmental monitoring and reporting, and other costs to comply with such regulations. Any adopted future climate change regulations could also negatively impact our ability to compete with companies situated in areas not subject to such limitations. Given the political significance and uncertainty around the impact of climate change and how it should be dealt with, we cannot predict how legislation and regulation will affect our financial condition, operating performance and ability to compete. Furthermore, even without such regulation, increased awareness and any adverse publicity in the global marketplace about potential impacts on climate change by us or other companies in our industry could harm our reputation.

General Risk Factors

The current pandemic of the novel coronavirus, or COVID-19, and any other future public health crisis, could materially adversely affect our business, financial condition, results of operations and cash flows.

In March 2020, the World Health Organization declared a new strain of coronavirus (COVID-19) a pandemic and the U.S. declared a national emergency with respect to COVID-19. The COVID-19 pandemic has negatively impacted regional and global economies, disrupted global supply chains and created significant volatility and disruption of financial markets, and another pandemic in the future could have similar negative consequences. Many jurisdictions, including those where we have operations, have reacted by instituting quarantines, restrictions on travel, “shelter in place” rules, social distancing protocols and restrictions on types of business that may continue to operate. Although we have been deemed an “essential” (or equivalent) business in most jurisdictions, and therefore, we have been permitted to continue most of our operations in those jurisdictions, the impact of the COVID-19 pandemic on our operational and financial performance has included temporary closures of our facilities and the facilities of certain of our customers, suppliers and other vendors in our supply chain, as well as disruptions and restrictions on our employees’ ability to travel. The COVID-19 pandemic is negatively impacting almost every industry directly or indirectly and has negatively impacted the demand for many of our products and our financial performance in 2020.

The COVID-19 pandemic, or a future pandemic, could have material and adverse effects on our ability to successfully operate and on our financial condition, results of operations and cash flows due to, among other factors:

- health concerns may lead to a complete or partial closure of, or other operational issues at, our manufacturing facilities or those of our contract manufacturers;
- the reduced economic activity may severely impact our customers’ financial condition and liquidity and may lead to decreased demand for our products and services or impact the timing of on-going or planned projects;

- difficulty accessing debt and equity capital on attractive terms, or at all, and a severe disruption and instability in the global financial markets or deteriorations in credit and financing conditions may affect our access to capital necessary to fund business operations or address existing and anticipated liabilities on a timely basis;
- a deterioration in our ability to operate in affected areas or delays in the supply of products or services to us from vendors that are needed for our efficient operations could adversely affect our operations;
- the potential negative impact on the health of our personnel, particularly if a significant number of them are impacted, could result in a deterioration in our ability to ensure business continuity during a disruption; and
- remote working arrangements may increase our vulnerability to cybersecurity incidents, including breaches of information systems security, which could damage our reputation, disrupt operations and expose us to claims from customers, suppliers, employees and others.

The extent to which COVID-19 or another future public health crisis impacts our operations and those of our customers and suppliers will depend on the scope, severity, duration and spread of the health crisis, the actions taken to contain it or mitigate its impact, and the direct and indirect economic effects of the crisis and containment measures, among others, all of which are uncertain and cannot be predicted with confidence. The continued fluidity of the COVID-19 pandemic precludes any prediction as to its full adverse impact. Nevertheless, the COVID-19 pandemic presents material uncertainty and risk. An extended period of global supply chain and economic disruption could materially affect our business, financial condition, results of operations, cash flows and access to sources of liquidity.

We may experience significant variability in our quarterly or annual effective income tax rate.

We have a large and complex international tax profile and a significant level of tax credit carryforwards in the U.S. and other carryforwards in various jurisdictions. Variability in the mix and profitability of domestic and international activities, identification and resolution of various tax uncertainties and the inability to realize tax credits and other carryforwards included in deferred tax assets, among other matters, have impacted our effective income tax rate in the past and may impact our effective income tax rate in the future. Tax law changes in the U.S. and certain other countries have also impacted our effective income tax rate in the past and may impact our effective tax rate in the future. A significant increase in our quarterly or annual effective income tax rate could have a material adverse impact on our results of operations.

We are commonly audited by various tax authorities, and some jurisdictions, both in the U.S. and abroad, have become more aggressive in their approach to audits and their enforcement of their applicable tax laws. In the ordinary course of our business, there are many transactions and calculations where the ultimate tax determination is uncertain. Significant judgment is required in determining our worldwide provision for income taxes. Although we believe our tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different from our historical income tax provisions and accruals. The results of an audit or litigation could have a material effect on our financial statements in the period or periods for which that determination is made and on our overall effective income tax rate.

We do not intend to pay dividends on our common stock and, consequently, the ability of investors to achieve a return on their investment will depend on appreciation in the price of our common stock.

We do not intend to declare and pay dividends on our common stock for the foreseeable future. The payment of future dividends will be at the discretion of our Board of Directors; however, the indentures and the credit agreements governing our indebtedness place limitations on our ability to pay dividends. We currently intend to invest our future earnings, if any, to reduce our debt and fund our growth and our Board of Directors may choose to provide returns to our stockholders through share repurchases. The success of an investment in our common stock will largely depend upon future appreciation in value, and there can be no guarantee that our common stock will appreciate in value.

Provisions of our certificate of incorporation and bylaws and Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, as a result, depress the trading price of our common stock.

Our certificate of incorporation and bylaws contain provisions that could discourage, delay or prevent a change in control of our company or changes in our management that the stockholders of our company may deem advantageous. These provisions:

- authorize 1,300,000,000 shares of common stock, which, to the extent unissued, could be issued by the Board of Directors, without stockholder approval, to increase the number of outstanding shares and to discourage a takeover attempt;
- authorize the issuance, without stockholder approval, of blank check preferred stock that our Board of Directors could issue to increase the number of outstanding shares and to discourage a takeover attempt;
- grant to the Board of Directors the sole power to set the number of directors and to fill any vacancy on the Board of Directors;
- limit the ability of stockholders to remove directors only “for cause” and require any such removal to be approved by holders of at least three-quarters of the outstanding shares of common stock;
- prohibit our stockholders from calling a special meeting of stockholders;
- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- provide that the Board of Directors is expressly authorized to adopt, or to alter or repeal our bylaws;
- establish advance notice and certain information requirements for nominations for election to our Board of Directors or for proposing matters that can be acted upon by stockholders at stockholder meetings;
- establish a classified Board of Directors, with three staggered terms; and
- require the approval of holders of at least three-quarters of the outstanding shares of common stock to amend the bylaws and certain provisions of the certificate of incorporation.

These anti-takeover defenses could discourage, delay or prevent a transaction involving a change in control of our company and may prevent our stockholders from receiving the benefit from any premium to the market price of our common stock offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of these provisions may adversely affect the prevailing market price of our common stock if the provisions are viewed as discouraging takeover attempts in the future. These provisions could also discourage proxy contests and make it more difficult for our stockholders to elect directors of their choosing and cause us to take corporate actions other than those our stockholders may desire.

Our business could be negatively impacted as a result of actions by activist stockholders or others.

Stockholder activism has been increasing in publicly traded companies in recent years and we are subject to the risks associated with such activism, particularly due to the overall decline in our stock price over the last two years. Our business could be negatively affected as a result of stockholder activism, which could cause us to incur significant legal fees and other costs, hinder execution of our business strategy and impact the trading value of our securities. Additionally, stockholder activism could give rise to perceived uncertainties as to our future direction, adversely affect our relationships with key executives and business partners and make it more difficult to attract and retain qualified employees. Any of these impacts could materially and adversely affect our business and operating results.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our facilities are used primarily for manufacturing, distribution and administration. Facilities primarily used for manufacturing may also be used for distribution, engineering, research and development, storage, administration, sales and customer service. Facilities primarily used for administration may also be used for research and development, sales and customer service. As of December 31, 2020, our principal facilities, grouped according to the facility's primary use, were as follows:

Location	Approximate square feet	Principal segments	Owned or leased
Administrative facilities:			
Hickory, NC (1)	84,000	Corporate headquarters	Owned
Horsham, PA	325,000	Corporate	Owned
Suwanee, GA	103,000	Corporate	Leased
San Diego, CA	187,000	Broadband & Home	Leased
Shakopee, MN	177,000	VCN	Leased
Bangalore, India	151,000	Home & Broadband	Leased
Saltaire, UK	112,000	Home	Leased
Lowell, MA	144,000	Broadband	Leased
Santa Clara, CA	132,000	Broadband & Home	Leased
Richardson, TX (1)	100,000	OWN	Owned
Manufacturing and distribution facilities:			
Catawba, NC (1)	1,000,000	Broadband	Owned
Claremont, NC (1)	589,000	VCN & Broadband	Owned
Kessel-Lo, Belgium	431,000	Broadband	Owned
Suzhou, China (2)	414,000	OWN & VCN	Owned
Suzhou, China (2)	363,000	Broadband	Owned
Goa, India (2)	353,000	OWN & VCN	Owned
Juarez, Mexico	327,000	VCN	Owned
Santa Teresa, NM	300,000	Broadband & VCN	Leased
Brno, Czech Republic	281,000	Broadband	Leased
Reynosa, Mexico	279,000	OWN	Owned
Veenendaal, Netherlands	215,000	OWN & VCN	Leased
Greensboro, NC (1)	196,000	VCN	Owned
Juarez, Mexico	189,000	Broadband	Leased
Cary, NC	151,000	Home & Broadband	Owned
Mission, TX	150,000	VCN	Leased
Delicias, Mexico	139,000	VCN	Owned
Campbellfield, Australia	133,000	OWN	Leased
Bray, Ireland	130,000	VCN	Owned
Tijuana, Mexico	128,000	Broadband & VCN	Leased
Buchdorf, Germany	109,000	VCN	Owned
Vacant facilities and properties:			
Joliet, IL (3)	690,000	Corporate	Leased
Sorocaba, Brazil (4)	157,000	OWN	Owned
Orland Park, IL (5)	—	Corporate	Owned

- (1) Our interest in each of these properties is encumbered by a mortgage or deed of trust lien securing our senior secured credit facilities (see Note 8 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K).
- (2) The buildings in these facilities are owned while the land is held under long-term lease agreements.
- (3) The Joliet facility is vacant and is currently being marketed for sublease.

- (4) The Sorocaba, Brazil facility is currently being marketed for sale.
- (5) The building at the Orland Park facility was demolished and cleared and the 73 acre parcel is vacant.

We believe that our facilities and equipment generally are well maintained, in good condition and suitable for our purposes and adequate for our present operations. While we currently have excess manufacturing capacity in certain of our facilities, utilization is subject to change based on customer demand. We can give no assurances that we will not have excess manufacturing capacity or encounter capacity constraints over the long term.

ITEM 3. LEGAL PROCEEDINGS

The Company is party to certain intellectual property claims and also periodically receives notices asserting that its products infringe on another party's patents and other intellectual property rights. These claims and assertions, whether against the Company directly or against its customers, could require the Company to pay damages, royalties, stop offering the relevant products and/or cease other activities. The Company may also be called upon to indemnify certain customers for costs related to products sold to such customers. While the outcome of the claims and notices is uncertain and a reasonable estimate of the loss from unfavorable outcomes in certain of these matters cannot be determined, an adverse outcome could result in a material loss.

The Company is also either a plaintiff or a defendant in certain other pending legal matters in the normal course of business. Management believes none of these pending legal matters will have a material adverse effect on the Company's business or financial condition upon final disposition.

In addition, the Company is subject to various federal, state, local and foreign laws and regulations governing the use, discharge, disposal and remediation of hazardous materials. Compliance with current laws and regulations has not had, and is not expected to have, a materially adverse effect on the Company's financial condition or results of operations.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information and Holders

Our common stock is traded on the Nasdaq Global Select Market under the symbol COMM. As of February 5, 2021, all of our outstanding shares of common stock are held by one stockholder of record, Cede & Co., as nominee for the Depository Trust Company. Many brokers, banks and other institutions hold shares of common stock as nominees for beneficial owners that deposit these shares of common stock in participant accounts at the Depository Trust Company.

Issuer Purchases of Equity Securities

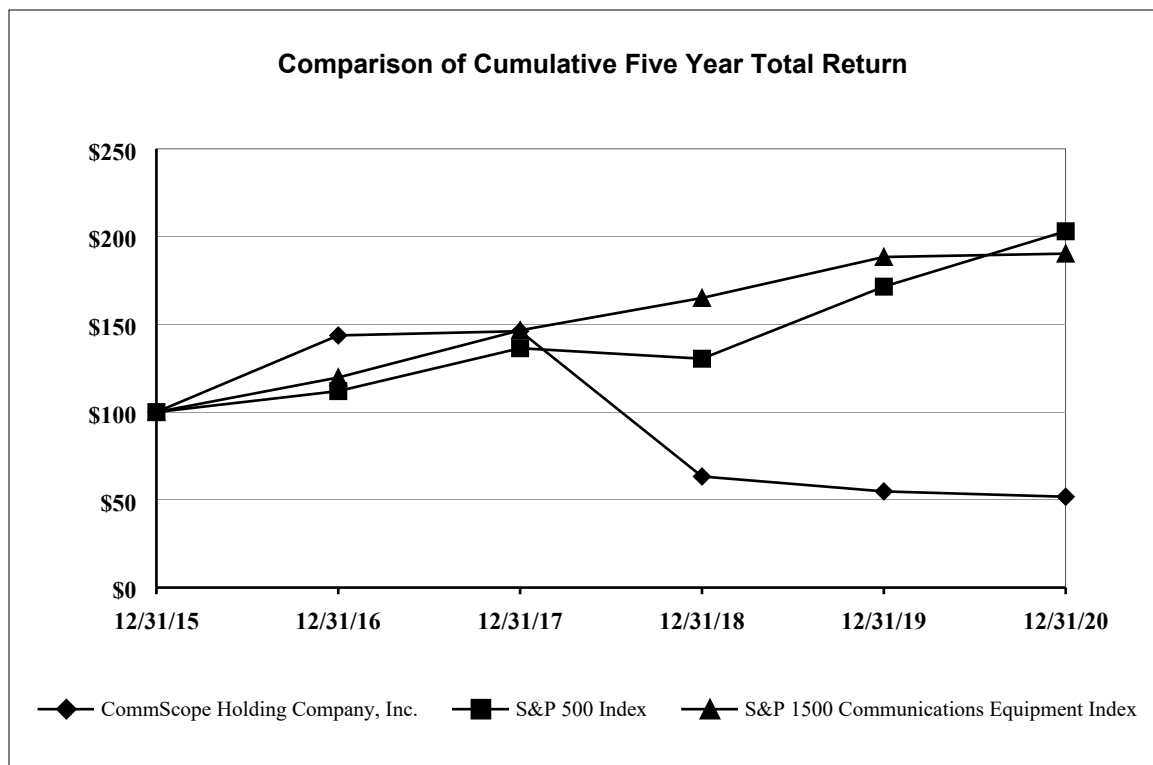
The following table summarizes the stock purchase activity for the three months ended December 31, 2020:

Period	Total Number of Shares Purchased ⁽¹⁾	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Value of Shares that May Yet be Purchased Under the Plans or Programs
October 1, 2020 - October 31, 2020	701,023	\$ 9.03	—	\$ —
November 1, 2020 - November 30, 2020	3,965	8.57	—	—
December 1, 2020 - December 31, 2020	20,011	13.01	—	—
Total	<u>724,999</u>	\$ 9.14	<u>—</u>	

- (1) The shares purchased were withheld to satisfy the withholding tax obligations related to restricted stock units and performance share units that vested during the period.

Stock Performance Graph

The following graph compares cumulative total return on \$100 invested on December 31, 2015 in each of CommScope’s Common Stock, the Standard & Poor’s 500 Stock Index (S&P 500 Index) and the Standard & Poor’s 1500 Communications Equipment Index (S&P 1500 Communications Equipment). The return of the Standard & Poor’s indices is calculated assuming reinvestment of dividends. CommScope has not paid any dividends on its common stock over this period.



Company / Index	Base Period	INDEXED RETURNS				
		Period Ending				
	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020
CommScope Holding Company, Inc.	100	143.68	146.12	63.31	54.81	51.76
S&P 500 Index	100	111.96	136.40	130.42	171.49	203.04
S&P 1500 Communications Equipment Index	100	119.72	146.60	165.02	188.38	190.29

ITEM 6. SELECTED FINANCIAL DATA

Not required.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations is for the year ended December 31, 2020 compared with the year ended December 31, 2019. This comparison should be read in conjunction with our consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements based upon current expectations that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under "Risk Factors" included in Part I, Item 1A or in other parts of this Annual Report on Form 10-K. For a discussion and analysis of our financial condition and results of operations for the year ended December 31, 2019 compared to December 31, 2018, see Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in the 2019 Annual Report on Form 10-K, filed with the Securities and Exchange Commission on February 20, 2020.

OVERVIEW

We are a global provider of infrastructure solutions for communication and entertainment networks. Our solutions for wired and wireless networks enable service providers including cable, telephone and digital broadcast satellite operators and media programmers to deliver media, voice, IP data services and Wi-Fi to their subscribers and allow enterprises to experience constant wireless and wired connectivity across complex and varied networking environments. Our solutions are complemented by a broad array of services including technical support, systems design and integration. We are a leader in digital video and Internet Protocol Television distribution systems, broadband access infrastructure platforms, and associated data and voice customer premises equipment. Our global leadership position is built upon innovative technology, broad solution offerings, high-quality and cost-effective customer solutions, and global manufacturing and distribution scale.

On April 4, 2019, we completed the acquisition of ARRIS International plc (ARRIS) (the Acquisition) in an all-cash transaction with a total purchase price of approximately \$7.7 billion, including debt assumed. The operations of the ARRIS business are included in our consolidated operating results for the year ended December 31, 2020; however, for the comparative year ended December 31, 2019, the operations of the ARRIS business are included only from the date of the Acquisition. During the years ended December 31, 2020 and 2019, we recognized \$24.9 million and \$195.3 million, respectively, of transaction and integration costs and \$88.4 million and \$87.7 million, respectively, of restructuring costs mostly related to the Acquisition and integration activities. We will continue to incur integration and restructuring costs and such costs may be material.

As of January 1, 2020, we reorganized our internal management and reporting structure as part of the integration of the Acquisition. The reorganization changed the information regularly reviewed by our chief operating decision maker for purposes of allocating resources and assessing performance. As a result, we are reporting financial performance based on four new operating segments: Broadband Networks (Broadband), Home Networks (Home), Outdoor Wireless Networks (OWN) and Venue and Campus Networks (VCN). These four segments represent non-aggregated reportable operating segments. Prior to this change, we operated and reported five operating segments: Connectivity Solutions, Mobility Solutions, Customer Premises Equipment, Network and Cloud (N&C) and Ruckus Networks. Our change in segments as of January 1, 2020 resulted in a realignment of our existing reporting units. Although the reporting units were realigned, our reporting units remained the same except for where two reporting units have been combined into a new reporting unit. In this case, goodwill was simply combined in the new reporting units. Since the composition of the reporting units and the assignment of goodwill to the reporting units were unaffected, an interim goodwill impairment test was not performed due to our change in segments during the first quarter of 2020.

In March 2020, the World Health Organization declared the new strain of coronavirus (COVID-19) a pandemic and the United States (U.S.) declared a national emergency with respect to COVID-19. The COVID-19 pandemic has negatively impacted regional and global economies, disrupted global supply chains and created significant volatility and disruption of financial markets. Many jurisdictions, including those where we have operations, have reacted by instituting quarantines, restrictions on travel, “shelter in place” rules, social distancing protocols and restrictions on types of business that may continue to operate. While we have been deemed an “essential” (or equivalent) business in most jurisdictions, and therefore, we have been permitted to continue most of our operations in those jurisdictions, the impact of the COVID-19 pandemic on our operational and financial performance has included temporary closures of our facilities and the facilities of certain of our customers, suppliers and other vendors in our supply chain, as well as disruptions and restrictions on our employees’ ability to travel. We have taken measures to protect the health and safety of our employees, including implementing new and increased cleaning procedures, health screenings, safety protocols and social distancing requirements where appropriate, working with our customers and vendors to minimize potential disruptions and supporting our community in addressing the challenges posed by this global pandemic.

The COVID-19 outbreak negatively impacted our financial performance during the year ended December 31, 2020, as discussed more below, particularly in our VCN, OWN and Home segments. While the impacts in the first quarter of 2020 were primarily related to supply constraints due to the shutdown of our factories in Suzhou, China, the impacts on the second, third and fourth quarters reflected a combination of changes in demand, business continuity costs and supply constraints. Currently, most CommScope factories are fully operational, but we have experienced periodic, temporary factory closures in certain jurisdictions due to health concerns. From a demand standpoint, the impact has been mixed with network strain driving increased demand for our Broadband products, while VCN has been negatively impacted due to social distancing measures and the general economic slowdown. We have taken a number of actions to reduce our operating costs and manage our balance sheet in light of the COVID-19 pandemic, including headcount reductions, improved working capital management, lower capital spending and suspension of certain discretionary spending.

The extent of the impact of the COVID-19 pandemic on our operational and financial performance will depend on future developments, including the duration and spread of the pandemic, the effectiveness of vaccines and related actions taken by domestic and international jurisdictions to maintain and prevent disease spread, all of which are uncertain and cannot be predicted. We have considered the impact of the economic slowdown on our evaluation of our significant estimates, including goodwill impairment indicators and credit losses, as of December 31, 2020. Although no indicators of goodwill impairment or significant changes in credit risk were identified as of December 31, 2020, it is possible that impairments and/or credit losses could emerge as the long-term impact of the crisis becomes clearer and those losses could be material. See the discussion below under “Critical Accounting Policies” for more information regarding the interim goodwill impairment test performed during the second quarter of 2020.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our consolidated financial statements have been prepared in conformity with generally accepted accounting principles (GAAP) in the U.S. The preparation of these financial statements requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. These estimates and their underlying assumptions form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other objective sources. Management bases its estimates on historical experience and on assumptions that are believed to be reasonable under the circumstances and revises its estimates, as appropriate, when changes in events or circumstances indicate that revisions may be necessary.

The following critical accounting policies and estimates reflected in our financial statements are based on management’s knowledge of and experience with past and current events and on management’s assumptions about future events. While we have generally not experienced significant deviations from our critical estimates in the past, it is reasonably possible that these estimates may ultimately differ materially from actual results. See Note 2 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for a description of all our significant accounting policies.

Asset Impairment Reviews

Impairment Reviews of Goodwill

We test goodwill at the reporting unit level for impairment annually as of October 1 and on an interim basis when events occur or circumstances exist that indicate the carrying value may no longer be recoverable. We compare the fair value of our reporting units with the carrying amount, including goodwill. We recognize an impairment charge for the amount by which the reporting unit's carrying amount exceeds its fair value.

We estimate the fair value of a reporting unit using a discounted cash flow (DCF) method or, as appropriate, a combination of the DCF method and a market approach known as the guideline public company method. Under the DCF method, we calculate the fair value of a reporting unit based on the present value of estimated future cash flows. The significant assumptions in the DCF model primarily include, but are not limited to, forecasts of annual revenue growth rates, annual operating income margin, the terminal growth rate and the discount rate used to determine the present value of the cash flow projections. When determining these assumptions and preparing these estimates, we consider historical performance trends, industry data, insight derived from customers, relevant changes in the reporting unit's underlying business and other market trends that may affect the reporting unit. The discount rate is based on the estimated weighted average cost of capital as of the test date of market participants in the industry in which the reporting unit operates and is commensurate with the risk and uncertainty inherent in each reporting unit and in internally developed forecasts. Under the guideline public company method, we estimate the fair value based upon market multiples of revenue and earnings derived from publicly traded companies with similar operating and investment characteristics as the reporting unit. The weighting of the fair value derived from the market approach may vary depending on the level of comparability of these publicly-traded companies to the reporting unit. When comparable public companies are not meaningful or not available, we may estimate the fair value of a reporting unit using only the DCF method.

Estimating the fair value of a reporting unit involves uncertainties because it requires management to develop numerous assumptions, including assumptions about the future growth and potential volatility in revenues and costs, capital expenditures, industry economic factors and future business strategy. Changes in projected revenue growth rates, projected operating income margins or estimated discount rates due to uncertain market conditions, loss of one or more key customers, changes in our strategy, changes in technology or other factors could negatively affect the fair value in one or more of our reporting units and result in a material impairment charge in the future.

To assess the reasonableness of the calculated fair values of our reporting units, we also compare the sum of the reporting units' fair values to our market capitalization and calculate an implied control premium (the excess of the sum of the reporting units' fair values over the market capitalization). If the implied control premium is not reasonable, we will reevaluate the fair value estimates of the reporting unit by adjusting the discount rates and/or other assumptions.

2020 Interim Goodwill Analysis

During the second quarter of 2020, we determined that indicators of impairment existed for our Home Networks reporting unit due to lower projected operating results, primarily driven by the accelerated decline in demand for video devices. This trend was projected to continue as consumers adopt the use of other streaming applications and was further impacted negatively by the macro-economic effects of COVID-19. Accordingly, we assessed the fair value of our Home Networks reporting unit as of May 31, 2020 and recorded a goodwill impairment charge of \$206.7 million in the Home segment. This reflects a full impairment of the remaining goodwill in the Home segment, and as such, the Home segment has no remaining goodwill balance as of December 31, 2020.

To determine the fair value of our Home Networks reporting unit and test for goodwill impairment, we developed a revised forecast for 2020 and updated the annual financial forecasts for the years beyond 2020. We used an income approach (DCF method) because we believe this is the most direct approach to incorporate the specific economic attributes and risk profile of the reporting unit into our valuation model. Consistent with our 2019 annual impairment test, we used a 9.0% discount rate for the interim goodwill impairment test for the Home Networks reporting unit. We determined that the utilization of a market approach for the interim goodwill impairment test would not impact the conclusion.

2020 Annual Goodwill Analysis

The annual test of goodwill impairment was performed for each of the reporting units with goodwill balances as of October 1, 2020. There were no goodwill impairments identified as a result of the annual impairment test performed in the fourth quarter of 2020. For the 2020 annual goodwill test, we determined the fair value of each reporting unit using a DCF model and a guideline public company approach, with 75% of the value determined using the DCF model and 25% of the value determined using the market approach. The range of discount rates used in our annual tests were 9.0% to 10.5% for 2020 and 9.0% to 11.0% for 2019.

The following table provides summary information regarding our reporting units with the lowest level of headroom, including key assumptions used in our annual goodwill analysis, along with sensitivity analysis showing the effect of a change in certain key assumptions, assuming all other assumptions remain constant, to the resulting fair value using an income approach. Accordingly, if performance is worse than anticipated for these reporting units, future impairment tests could result in impairment charges that could be material to our results of operations. The Enterprise reporting unit is in our VCN segment and the N&C reporting unit is in our Broadband segment.

Reporting Unit	Key Assumptions		Goodwill		Excess (Deficit) of Fair Value to Carrying Value			
	Discount Rate	Terminal Growth Rate	Balance at December 31, 2020	% of Total Assets	Result of Annual Goodwill Test as of October 1, 2020	Decrease of 10% in Cash Flows	Decrease of 0.5% in Long-term Growth Rate	Increase of 0.5% in Discount Rate
Enterprise	10.5%	1.5%	\$ 987.3	7.3%	\$ 35.7	\$ (78.1)	\$ (1.2)	\$ (30.2)
N&C	9.5	2.0	2,036.6	15.0	375.8	66.8	240.0	162.4

Definite-Lived Intangible Assets and Other Long-Lived Assets

Management reviews definite-lived intangible assets and other long-lived assets for impairment when events or changes in circumstances indicate that their carrying values may not be fully recoverable. This analysis differs from our goodwill impairment analysis in that an intangible or other long-lived asset impairment is only deemed to have occurred if the sum of the forecasted undiscounted future net cash flows related to the assets being evaluated is less than the carrying value of the assets. If the forecasted net cash flows are less than the carrying value, then the asset is written down to its estimated fair value. Other than certain assets impaired as a result of restructuring actions, we did not identify any impairments of definite-lived intangible assets or other long-lived assets in 2020. Changes in the estimates of forecasted net cash flows may result in future asset impairments that could be material to our results of operations.

Revenue Recognition

We recognize revenue based on the satisfaction of distinct obligations to transfer goods and services to customers. Our revenue is generated primarily from product or equipment sales. We also generate revenue from custom design and installation services as well as bundled sales arrangements that include product, software and services. Revenue is recognized when performance obligations in a contract are satisfied through the transfer of control of the good or service at the amount of consideration expected to be received. The following are required before revenue is recognized:

- Identify the contract with the customer. A variety of arrangements are considered contracts; however, contracts typically take the form of a master purchase agreement or customer purchase orders.
- Identify the performance obligations in the contract. Performance obligations are identified as promised goods or services that are distinct within an arrangement.
- Determine the transaction price. The transaction price is the amount of consideration we expect to receive in exchange for transferring the promised goods or services. The consideration may include fixed or variable amounts or both.
- Allocate the transaction price to the performance obligations. The transaction price is allocated to the performance obligations on a relative standalone selling price basis.

- Recognize revenue as the performance obligations are satisfied. Revenue is recognized when transfer of control of the promised goods or services has occurred. This is either at a point in time or over time.

Product sales represent over 90% of our revenue. For these sales, revenue is recognized when control of the product has transferred to the customer, which is generally at the point in time when products have been shipped, right to payment has been obtained and risk of loss has been transferred. Certain of our product performance obligations include proprietary operating system software, which typically is not considered separately identifiable. Therefore, sales of these products and the related software are considered one performance obligation.

License contracts include revenue recognized for the licensing of intellectual property, including software, sold separately without products. Functional intellectual property licenses do not meet the criteria for revenue to be recognized over time and revenue is most commonly recognized upon delivery of the license/software to the customer.

Certain customer transactions may be project based and include multiple performance obligations based on the bundling of equipment, software and services. When a multiple performance obligation arrangement exists, the transaction price is allocated to the performance obligations based on the relative standalone selling price, and revenue is recognized upon transfer of control of each deliverable. To determine the standalone selling price, we first look to establish the standalone selling price through an observable price when the good or service is sold separately in similar circumstances. If the standalone selling price cannot be established through an observable price, we will make an estimate based on market conditions, customer specific factors and customer class. We may use a combination of approaches to estimate the standalone selling price.

For performance obligations recognized over time, judgment is required to evaluate assumptions, including the total estimated costs to determine progress towards completion of the performance obligation and to calculate the corresponding amount of revenue to recognize. If estimated total costs on any contract are greater than the net contract revenues, the entire estimated costs are recorded in the period in which the revisions to estimates are identified and the amounts can be reasonably estimated.

Other customer contract types include a variety of post-contract support services offerings, including:

- Maintenance and support services provided under annual service-level agreements with our customers. These services represent stand-ready obligations that are recognized over time (on a straight-line basis over the contract period) because the customer simultaneously receives and consumes the benefits of the services as the services are performed.
- Professional services and other similar services consist primarily of “Day 2” services to help customers maximize their utilization of deployed systems. The services are recognized over time because the customer simultaneously receives and consumes the benefits of the service as the services are performed.
- Installation services relate to the routine installation of equipment ordered by the customer at the customer’s site and are distinct performance obligations from delivery of the related hardware. The associated revenues are recognized over time as the services are provided.

Revenue is measured based on the consideration to which we expect to be entitled based on customer contracts. For sales to distributors, system integrators and value-added resellers, revenue is adjusted for variable consideration amounts, including but not limited to estimated discounts, returns, rebates and distributor price protection programs. These estimates are determined based upon historical experience, contract terms, inventory levels in the distributor channel and other related factors. Adjustments to variable consideration estimates are recorded when circumstances indicate revisions may be necessary.

A contract liability for deferred revenue is recorded when consideration is received or is unconditionally due from a customer prior to transferring control of goods or services to the customer under the terms of a contract. Deferred revenue balances typically result from advance payments received from customers for product contracts or from billings in excess of revenue recognized on project or services arrangements.

Unbilled receivables are recorded when revenues are recognized in advance of invoice issuance. A contract asset is any portion of unbilled receivables for which the right to consideration is conditional on a factor other than the passage of time, which is common for certain project contract performance obligations. These assets are presented on a combined basis with accounts receivable and are converted to accounts receivable once our right to the consideration becomes unconditional, which varies by contract but is generally based on achieving certain acceptance milestones. We recognize the incremental costs of obtaining a contract as an expense when incurred if the amortization period of the asset would be one year or less.

We include shipping and handling costs billed to customers in net sales and include the costs incurred to transport product to customers as well as certain internal handling costs, which relate to activities to prepare goods for shipment, as cost of sales. Shipping and handling costs incurred after control is transferred to the customer are accounted for as fulfillment costs and are not accounted for as separate revenue obligations.

Leases

We determine if a contract is a lease or contains a lease at inception. Right of use assets related to operating type leases are reported in other noncurrent assets and the present value of remaining lease obligations is reported in accrued and other liabilities and other noncurrent liabilities on the Consolidated Balance Sheets. We do not currently have any financing type leases.

Operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The majority of our leases do not provide an implicit rate; therefore, we use the incremental borrowing rates applicable to the economic environment and the duration of the lease, based on the information available at commencement date, in determining the present value of future payments. The right of use asset for operating leases is measured using the lease liability adjusted for the impact of lease payments made prior to commencement, lease incentives received, initial direct costs incurred and any asset impairments. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the option will be exercised. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

We remeasure and reallocate the consideration in a lease when there is a modification of the lease that is not accounted for as a separate contract. The lease liability is remeasured when there is a change in the lease term or a change in the assessment of whether we will exercise a lease option. We assess right of use assets for impairment in accordance with our long-lived asset impairment policy.

We account for lease agreements with contractually required lease and non-lease components on a combined basis. Lease payments made for cancellable leases, variable amounts that are not based on an observable index and lease agreements with an original duration of less than twelve months are recorded directly to lease expense.

Inventory Reserves

We maintain reserves to reduce the value of inventory based on the lower of cost or net realizable value, including allowances for excess and obsolete inventory. These reserves are based on management's assumptions about and analysis of relevant factors including current levels of orders and backlog, forecasted demand, market conditions and new products or innovations that diminish the value of existing inventories. If actual market conditions deteriorate from those anticipated by management, additional allowances for excess and obsolete inventory could be required and may be material to earnings.

Product Warranty Reserves

We recognize a liability for the estimated claims that may be paid under our customer assurance-type warranty agreements to remedy potential deficiencies of quality or performance of our products. The product warranties extend over various periods, depending upon the product subject to the warranty and the terms of the individual agreements. We record a provision for estimated future warranty claims based upon the historical relationship of warranty claims to sales and specifically identified warranty issues. We base our estimates on historical experience and on assumptions that are believed to be reasonable under the circumstances and revise our estimates, as appropriate, when events or changes in circumstances indicate that revisions may be necessary. Although these estimates are based on management's knowledge of and experience with past and current events and on management's assumptions about future events, it is reasonably possible that they may ultimately differ materially from actual results, including in the case of a significant product failure.

Tax Valuation Allowances and Liabilities for Unrecognized Tax Benefits

We establish an income tax valuation allowance when available evidence indicates that it is more likely than not that all or a portion of a deferred tax asset will not be realized. In assessing the need for a valuation allowance, we consider the amounts, character, source and timing of expected future deductions or carryforwards as well as sources of taxable income and tax planning strategies that may enable utilization. We maintain an existing valuation allowance until sufficient positive evidence exists to support its reversal. Changes in the amount or timing of expected future deductions or taxable income may have a material impact on the level of income tax valuation allowances. If we determine that we will not be able to realize all or part of a deferred tax asset in the future, an increase to an income tax valuation allowance would be charged to earnings in the period such determination was made.

We recognize income tax benefits related to particular tax positions only when it is considered more likely than not that the tax position will be sustained if examined on its technical merits by tax authorities. The amount of benefit recognized is the largest amount of tax benefit that is evaluated to be greater than 50% likely to be realized. Considerable judgment is required to evaluate the technical merits of various positions and to evaluate the likely amount of benefit to be realized. Lapses in statutes of limitations, developments in tax laws, regulations and interpretations, and changes in assessments of the likely outcome of uncertain tax positions could have a material impact on the overall tax provision.

We establish deferred tax liabilities for the estimated tax cost associated with foreign earnings that we do not consider permanently reinvested (primarily foreign withholding and state income taxes). These liabilities are subject to adjustment if there is a change in the assertion of whether the foreign earnings are considered to be permanently reinvested.

We also establish allowances related to value-added and similar recoverable taxes when it is considered probable that those assets are not recoverable. Changes in the probability of recovery or in the estimates of the amount recoverable are recognized in the period such determination is made and may be material to earnings.

Business Combinations

We use the acquisition method of accounting for business combinations which requires the tangible and intangible assets acquired and liabilities assumed to be recorded at their respective fair market value as of the acquisition date. Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired. The fair values of the assets acquired and liabilities assumed are determined based upon management's valuation and involves making significant estimates and assumptions based on facts and circumstances that existed as of the acquisition date. We use a measurement period following the acquisition date to gather information that existed as of the acquisition date that is needed to determine the fair value of the assets acquired and liabilities assumed. The measurement period ends once all information is obtained, but no later than one year from the acquisition date.

RESULTS OF OPERATIONS

Comparison of results of operations for the year ended December 31, 2020 with the year ended December 31, 2019

	Year Ended December 31,					
	2020		2019		\$ Change	% Change
	Amount	% of Net Sales	Amount	% of Net Sales		
	(dollars in millions, except per share amounts)					
Net sales	\$8,435.9	100.0%	\$8,345.1	100.0%	\$ 90.8	1.1%
Gross profit	2,747.8	32.6	2,404.1	28.8	343.7	14.3
Operating loss	(51.8)	(0.6)	(508.5)	(6.1)	456.7	NM
Non-GAAP adjusted EBITDA ⁽¹⁾	1,215.2	14.4	1,297.5	15.5	(82.3)	(6.3)
Net loss	(573.4)	(6.8)	(929.5)	(11.1)	356.1	NM
Diluted loss per share	\$ (3.20)		\$ (5.02)		\$ 1.82	NM

(1) See "Reconciliation of Non-GAAP Measures" in this Management's Discussion and Analysis of Financial Condition and Results of Operations, below.

Net sales

	Year Ended December 31,		\$ Change	% Change
	2020	2019		
Net sales	\$ 8,435.9	\$ 8,345.1	\$ 90.8	1.1%
Domestic	5,185.3	4,923.3	262.0	5.3
International	3,250.6	3,421.8	(171.2)	(5.0)

Net sales in 2020 increased compared to the prior year by \$531.9 million in our Broadband segment, primarily related to the addition of the ARRIS business for the full year of 2020 compared to only a partial year in 2019, but also due to increased demand for our Network Cable and Connectivity (NCC) and N&C products. These increases were partially offset by decreases in net sales of \$231.3 million in our OWN segment, \$179.0 million in our Home segment and \$30.8 million in our VCN segment. The decreases in the OWN and Home segments were driven primarily by a slowdown in sales to both U.S. and international service provider customers as demand for video products and wireless network equipment decreased. The decline in the VCN segment was driven by decreases in sales of Enterprise products. Both the Home and VCN segments declined in 2020 despite the inclusion of the ARRIS business for a full year in 2020 compared to a partial year in 2019. For further details by segment, see the section titled "Segment Results" below.

From a regional perspective, net sales increased in 2020 in the U.S. by \$262.0 million primarily due to the Acquisition. Net sales decreased in the Asia Pacific (APAC) region by \$122.5 million, the Caribbean and Latin America (CALA) region by \$40.4 million and the Europe, Middle East and Africa (EMEA) region by \$13.4 million and increased in Canada by \$5.1 million. Net sales to customers located outside of the U.S. comprised 38.5% of total net sales for 2020 compared to 41.0% for 2019.

We believe lower demand caused by COVID-19 reduced our net sales during 2020. While it is difficult to quantify the demand impacts, we believe the most significant reductions in demand related to COVID-19 for 2020 were in our VCN segment. We do not believe that supply chain disruptions related to COVID-19 materially impacted net sales during the second half of 2020, but we estimate that supply chain disruptions reduced revenue by approximately \$90 million during the first half of 2020. Management currently expects the decline in net sales caused by the economic slowdown to continue into 2021.

Gross profit, SG&A expense and R&D expense

	Year Ended December 31,		\$ Change	% Change
	2020	2019		
Gross profit	\$ 2,747.8	\$ 2,404.1	\$ 343.7	14.3%
As a percent of sales	32.6%	28.8%		
SG&A expense	1,170.7	1,277.1	(106.4)	(8.3)
As a percent of sales	13.9%	15.3%		
R&D expense	703.3	578.5	124.8	21.6
As a percent of sales	8.3%	6.9%		

Gross profit (net sales less cost of sales)

Gross profit increased for 2020 compared to the prior year primarily due to the addition of the ARRIS business for the full year in 2020 compared to a partial year in 2019. Gross profit in 2019 was negatively impacted by ARRIS acquisition accounting adjustments of \$264.2 million primarily related to the markup of inventory to its estimated fair value. Excluding the acquisition accounting adjustments recorded in 2019, CommScope's gross profit was \$2,668.3 million and gross profit as a percentage of sales was 32.0%. We estimate that a combination of supply chain disruptions and business continuity costs related to COVID-19 reduced gross profit by approximately \$70 million for 2020.

Selling, general and administrative expense

For 2020, selling, general and administrative (SG&A) expense decreased compared to the prior year due to a reduction of \$170.4 million in transaction and integration costs related to the Acquisition. Excluding transaction and integration costs, SG&A expense for 2020 increased primarily due to the inclusion of the ARRIS business for a full year in 2020 compared to a partial year in 2019 as well as higher variable incentive compensation. These increases were partially offset by the benefits in 2020 of acquisition synergies and other cost savings initiatives.

Research and development expense

Research and development (R&D) expense for 2020 increased primarily due to the inclusion of the ARRIS business for a full year in 2020 compared to a partial year in 2019 but also due to our continuing investment in certain VCN segment products and higher variable incentive costs. R&D activities generally relate to ensuring that our products are capable of meeting the evolving technological needs of our customers, bringing new products to market and modifying existing products to better serve our customers.

Amortization of purchased intangible assets, Restructuring costs, net and Asset impairments

	Year Ended December 31,		\$ Change	% Change
	2020	2019		
Amortization of purchased intangible assets	\$ 630.5	\$ 593.2	\$ 37.3	6.3%
Restructuring costs, net	88.4	87.7	0.7	0.8
Asset impairments	206.7	376.1	(169.4)	(45.0)

Amortization of purchased intangible assets

The amortization of purchased intangible assets was higher in 2020 compared to the prior year primarily due to the inclusion of the ARRIS business for a full year in 2020 compared to a partial year in 2019. Excluding this comparability impact, amortization decreased for 2020 compared to the prior year because certain of our intangible assets became fully amortized.

Restructuring costs, net

The restructuring costs recorded in 2020 and 2019 were primarily related to integrating and preparing to integrate the ARRIS business. From a cash perspective, we paid \$76.7 million to settle restructuring liabilities during 2020 and expect to pay an additional \$26.0 million between 2021 and 2022 related to restructuring actions that have been initiated. Additional restructuring actions related to the Acquisition are expected to be identified and the resulting charges and cash requirements are expected to be material. In 2020, we also recorded certain asset impairment charges of \$11.6 million identified as restructuring costs because they resulted from restructuring initiatives.

Asset impairments

In 2020, we recorded goodwill impairment charges of \$206.7 million related to our Home Networks reporting unit within our Home segment. See the discussion above under “Critical Accounting Policies” for more information regarding the interim and annual goodwill impairment tests performed during 2020. In 2019, we recorded goodwill impairment charges of \$142.1 million, \$192.8 million and \$41.2 million related to our Broadband, Home and VCN segments, respectively, as a result of our annual goodwill impairment test.

Other expense, net

	Year Ended December 31,		\$ Change	% Change
	2020	2019		
Foreign currency loss	\$ (19.2)	\$ (11.9)	\$ (7.3)	NM
Other income (expense), net	(10.1)	5.5	(15.6)	(283.6)%

Foreign currency loss

Foreign currency loss includes the net foreign currency gains and losses resulting from the settlement of receivables and payables, foreign currency contracts and short-term intercompany advances in a currency other than the subsidiary’s functional currency. The increase in foreign currency loss for 2020 compared to the prior year was primarily driven by certain unhedged currencies.

Other income (expense), net

We paid redemption premiums of \$17.9 million that were included in other income (expense), net during 2020 in connection with the refinancing of the 5.00% senior notes due 2021 (the 2021 Notes) and the 5.50% senior notes due 2024 (the 2024 Notes) and the redemptions of \$200.0 million of the 6.00% senior notes due 2025 (the 2025 Notes), as further described in Note 8 in the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K. We did not pay any similar redemption premiums during 2019.

Interest expense, Interest income and Income taxes

	Year Ended December 31,		\$ Change	% Change
	2020	2019		
Interest expense	\$ (577.8)	\$ (577.2)	\$ (0.6)	NM
Interest income	4.4	18.1	(13.7)	(75.7)%
Income tax benefit	81.1	144.5	(63.4)	(43.9)%

Interest expense and interest income

Interest expense for 2020 was relatively unchanged compared to the prior year period. Interest expense increased in 2020 due to the financing of the Acquisition that occurred in February 2019 but this increase was offset by lower variable interest rates and lower debt balances due to voluntary repayments in 2019 and 2020.

In March 2019, we entered into pay-fixed, receive-variable interest rate swap derivatives and designated them as cash flow hedges of interest rate risk. These swaps effectively fixed the interest rate on a portion of the senior secured term loan due 2026 (the 2026 Term Loan). The total notional amount of the interest rate swap derivatives as of December 31, 2020 was \$600 million with outstanding maturities of up to thirty-nine months.

Our weighted average effective interest rate on outstanding borrowings, including the impact of the interest rate swap and the amortization of debt issuance costs and original issue discount, was 5.86% at December 31, 2020 and 6.13% at December 31, 2019.

Interest income decreased during 2020 primarily due to \$10.9 million of interest earned on the proceeds of the acquisition-related debt that were held in an interest-bearing escrow account in the prior year until the Acquisition date.

Income tax benefit

For 2020, our effective tax rate was 12.4% and we recognized a tax benefit of \$81.1 million on a pretax loss of \$654.5 million. Our tax benefit was less than the statutory rate of 21.0% in 2020 primarily due to a goodwill impairment charge of \$206.7 million, for which minimal tax benefits were recorded. Our tax rate was also impacted unfavorably by excess tax costs of \$14.0 million related to equity compensation awards as well as U.S. anti-deferral provisions and foreign withholding taxes. These unfavorable impacts were offset partially by favorable impacts related to federal tax credits and foreign tax rate changes. See Note 13 in the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K for more discussion of our income tax benefit.

For 2019, our effective tax rate was 13.5% and we recognized a tax benefit of \$144.5 million on a pretax loss of \$1,074.0 million. Our tax benefit was less than the statutory rate primarily due to a goodwill impairment charge of \$376.1 million, for which minimal tax benefits were recorded. The rate was also unfavorably impacted by U.S. anti-deferral provisions and foreign withholding taxes but these were partially offset by the favorable impact of federal tax credits and the expiration of statutes of limitations on various uncertain tax positions.

Segment Results

	Year Ended December 31,					
	2020		2019		\$	%
	Amount	% of Net Sales	Amount	% of Net Sales		
Net sales by segment:						
Broadband	\$ 2,895.7	34.3 %	\$ 2,363.8	28.3 %	\$ 531.9	22.5 %
Home	2,360.0	28.0	2,539.0	30.4	(179.0)	(7.1)
OWN	1,243.7	14.7	1,475.0	17.7	(231.3)	(15.7)
VCN	1,936.5	23.0	1,967.3	23.6	(30.8)	(1.6)
Consolidated net sales	<u>\$ 8,435.9</u>	100.0 %	<u>\$ 8,345.1</u>	100.0 %	<u>\$ 90.8</u>	1.1 %
Operating income (loss) by segment:						
Broadband	\$ 171.5	5.9 %	\$ (326.1)	(13.8)%	\$ 497.6	NM
Home	(289.7)	(12.3)	(196.0)	(7.7)	(93.7)	NM
OWN	181.1	14.6	200.3	13.6	(19.2)	(9.6)%
VCN	(114.7)	(5.9)	(186.7)	(9.5)	72.0	NM
Consolidated operating loss	<u>\$ (51.8)</u>	(0.6)%	<u>\$ (508.5)</u>	(6.1)%	<u>\$ 456.7</u>	NM
Adjusted EBITDA by segment:						
Broadband	\$ 640.5	22.1 %	\$ 473.3	20.0 %	\$ 167.2	35.3 %
Home	116.2	4.9	193.7	7.6	(77.5)	(40.0)
OWN	278.5	22.4	361.2	24.5	(82.7)	(22.9)
VCN	180.0	9.3	269.3	13.7	(89.3)	(33.2)
Non-GAAP consolidated adjusted EBITDA ⁽¹⁾	<u>\$ 1,215.2</u>	14.4 %	<u>\$ 1,297.5</u>	15.5 %	<u>\$ (82.3)</u>	(6.3)%

(1) See “Reconciliation of Non-GAAP Measures” within this Management’s Discussion and Analysis of Financial Condition and Results of Operations, below.

Broadband Networks Segment

Broadband segment net sales were higher in 2020 compared to the prior year primarily due to the inclusion of the N&C business for a full year in 2020 compared to a partial year in 2019, but also due to higher sales of both our NCC and N&C products. From a regional perspective, for 2020, Broadband segment net sales increased across all major regions, driven by increases of \$431.7 million in the U.S., \$48.9 million in the EMEA region, \$31.8 million in the APAC region and \$21.1 million in the CALA region. Supply constraints related to the COVID-19 pandemic negatively affected Broadband segment net sales during the first half of 2020; however, we believe the segment also benefitted from increased demand for certain of its products. The negative impacts of COVID-19 were not significant to the Broadband segment in the second half of 2020 and we do not expect significant negative impacts in 2021.

For 2020, Broadband segment operating income and adjusted EBITDA increased due to higher net sales, the impact of cost savings initiatives and lower material costs. Broadband segment operating income was also favorably impacted by reductions in goodwill impairment charges of \$142.1 million, reductions in acquisition accounting adjustments of \$124.4 million primarily related to the mark-up of inventory to its estimated fair value, reductions in transaction and integration costs of \$112.3 million and reductions in restructuring costs of \$19.1 million. Asset impairment charges, transaction and integration costs, acquisition accounting adjustments and restructuring costs are not reflected in adjusted EBITDA. See “Reconciliation of Segment adjusted EBITDA” within this Management’s Discussion and Analysis of Financial Condition and Results of Operations, below.

Home Networks Segment

Net sales for the Home segment decreased in 2020, despite the inclusion of the ARRIS business for a full year in 2020 compared to a partial year in 2019, due to lower sales volumes of video products to service provider customers. From a regional perspective, for 2020, the decrease in Home segment net sales was driven by decreases of \$96.0 million in the APAC region, \$86.7 million in the U.S. and \$39.9 million in the CALA region, but these were partially offset by an increase in net sales in the EMEA region of \$46.1 million. For 2020, we believe the impacts from COVID-19 were a combination of supply chain disruptions and lower demand for video products. We anticipate ongoing softness in the Home segment continuing into 2021, partially due to the impacts of COVID-19 but also due to the continuing declines in demand for video products.

For 2020, the Home segment operating loss increased and adjusted EBITDA decreased compared to the prior year primarily due to lower sales volumes. Home segment operating loss was favorably impacted by a \$25.9 million reduction in acquisition accounting adjustments primarily related to the mark-up of inventory to its estimated fair value, and the release of a \$23.6 million accrual related to a patent royalty matter that was settled for less than anticipated. These favorable impacts to operating loss were offset by higher goodwill impairment charges of \$13.8 million, higher transaction and integration costs of \$8.5 million and higher restructuring costs of \$6.8 million. Asset impairments, acquisition accounting adjustments, transaction and integration costs, restructuring costs and a portion of the patent and litigation settlement described above are not reflected in adjusted EBITDA. Of the \$23.6 million patent royalty accrual release, \$15.1 million related to pre-acquisition sales and was excluded from the calculation of adjusted EBITDA; the remaining \$8.5 million release provided a benefit to Home segment adjusted EBITDA in 2020. See “Reconciliation of Segment adjusted EBITDA” within this Management’s Discussion and Analysis of Financial Condition and Results of Operations, below.

Outdoor Wireless Networks Segment

OWN segment net sales decreased during 2020 compared to the prior year primarily due to a slowdown in sales of wireless network equipment to both U.S. and international service provider customers. From a regional perspective, for 2020, OWN segment net sales were lower across all major regions and were primarily driven by decreases in the U.S. of \$156.5 million, the EMEA region of \$56.8 million and the APAC region of \$28.1 million. U.S. net sales of OWN segment products in 2019 benefitted from the build out of next generation 4G networks to support commercial and public safety markets, and that spending did not recur at the same level in 2020. In addition, we believe a portion of the decline in OWN segment net sales for 2020 was caused by lower demand as a result of the macroeconomic slowdown caused by the COVID-19 pandemic. We currently believe the impact from COVID-19 could continue to negatively affect the OWN segment into 2021.

For 2020, OWN segment operating income decreased compared to the prior year due to lower net sales in the current year partially offset by the impact of a patent litigation claim settled during the prior year period for \$55.0 million. Adjusted EBITDA decreased for 2020 compared to the prior year primarily due to the decrease in net sales. Patent litigation settlements are not reflected in adjusted EBITDA. See “Reconciliation of Segment adjusted EBITDA” within this Management’s Discussion and Analysis of Financial Condition and Results of Operations, below.

Venue and Campus Networks Segment

VCN segment net sales were lower in 2020 compared to the prior year, primarily due to lower sales of Enterprise products primarily driven by the COVID-19 pandemic, despite the incremental sales of the acquired Ruckus business in 2020 compared to 2019. From a regional perspective, for 2020, VCN segment net sales increased \$73.4 million in the U.S. but decreased across all other major regions, driven by decreases of \$51.6 million in the EMEA region, \$30.2 million in the APAC region and \$15.4 million in the CALA region. Management currently expects the impact of COVID-19 to continue to negatively affect the VCN segment into 2021.

For 2020, VCN segment operating loss decreased due to a \$93.3 million reduction in acquisition accounting adjustments primarily related to the mark-up of inventory to its estimated fair value as well as reductions in transaction and integration costs of \$51.6 million. These favorable impacts were offset partially by a \$13.7 million increase in patent litigation costs and a \$4.2 million increase in restructuring costs. For 2020, VCN segment operating loss and adjusted EBITDA were negatively impacted by lower sales and unfavorable product mix, offset partially by the impacts of cost savings initiatives. Acquisition accounting adjustments, restructuring costs, patent litigation costs and transaction and integration costs are not reflected in adjusted EBITDA. See “Reconciliation of Segment adjusted EBITDA” within this Management’s Discussion and Analysis of Financial Condition and Results of Operations, below.

Liquidity and Capital Resources

The following table summarizes certain key measures of our liquidity and capital resources:

	December 31,		\$ Change	% Change
	2020	2019		
Cash and cash equivalents	\$ 521.9	\$ 598.2	\$ (76.3)	(12.8)%
Working capital ⁽¹⁾ , excluding cash and cash equivalents and current portion of long-term debt	911.2	903.6	7.6	0.8
Availability under revolving credit facility	735.1	796.8	(61.7)	(7.7)
Long-term debt, including current portion	9,520.6	9,832.4	(311.8)	(3.2)
Total capitalization ⁽²⁾	10,917.4	11,668.7	(751.3)	(6.4)
Long-term debt as a percentage of total capitalization	87.2%	84.3%		

- (1) Working capital consists of current assets of \$3,354.5 million less current liabilities of \$1,953.4 million as of December 31, 2020 and current assets of \$3,511.8 million less current liabilities of \$2,042.0 million as of December 31, 2019.
- (2) Total capitalization includes long-term debt, including the current portion, Series A convertible preferred stock (the Convertible Preferred Stock) and stockholders’ equity.

Our principal sources of liquidity on a short-term basis are cash and cash equivalents, cash flows provided by operations and availability under our credit facilities. In April 2020, we borrowed \$250.0 million under our senior secured revolving credit facility (the Revolving Credit Facility) as a precautionary measure to reinforce our cash position and preserve financial flexibility in light of the uncertainty in the global economy at that time resulting from the COVID-19 pandemic. We subsequently repaid the full amount in July 2020 because we did not believe the proceeds were needed for future liquidity as our cash flow generation has continued to improve and the broader financial markets have continued to stabilize. On a long-term basis, our potential sources of liquidity also include raising capital through the issuance of additional equity and/or debt.

The primary uses of liquidity include debt service requirements (including voluntary debt repayments or redemptions), funding working capital requirements, paying acquisition integration costs, paying transaction costs, capital expenditures, paying restructuring costs, paying dividends related to the Convertible Preferred Stock if we elect to pay such dividends in cash, paying litigation settlements and income tax payments. We believe that our existing cash, cash equivalents and cash flows from operations, combined with availability under the Revolving Credit Facility, will be sufficient to meet our presently anticipated future cash needs. We may experience volatility in cash flows between periods due to, among other reasons, variability in the timing of vendor payments and customer receipts. We may, from time to time, borrow additional amounts under the Revolving Credit Facility or issue securities, if market conditions are favorable, to meet future cash needs or to reduce our borrowing costs.

Although there are no financial maintenance covenants under the terms of our senior notes, there is a limitation, among other limitations, on certain future borrowings based on an adjusted leverage ratio or a fixed charge coverage ratio. These ratios are based on financial measures similar to non-GAAP adjusted EBITDA as presented in the “Reconciliation of Non-GAAP Measures” section below, but also give pro forma effect to certain events, including acquisitions, synergies and savings from cost reduction initiatives such as facility closures and headcount reductions. For the year ended December 31, 2020, our non-GAAP pro forma adjusted EBITDA, as measured pursuant to the indentures governing our notes, was \$1,289.9 million, which included annualized synergies expected to be realized in the next two years (\$32.6 million) and annualized savings expected from announced cost reduction initiatives (\$42.1 million) so that the impact of the cost reduction initiatives is fully reflected in the twelve-month period used in the calculation of the ratios. In addition to limitations under these indentures, our senior secured credit facilities contain customary negative covenants based on similar financial measures. We believe we are in compliance with the covenants under our indentures and senior secured credit facilities at December 31, 2020.

Cash and cash equivalents decreased during 2020 primarily due to debt redemptions of \$1.0 billion, partially offset by the issuance of \$700.0 million of 7.125% senior unsecured notes due in 2028 (the 2028 Notes). We also invested \$121.2 million in capital expenditures. These uses of cash were offset partially by cash generated by operating activities of \$436.2 million. As of December 31, 2020, approximately 46% of our cash and cash equivalents were held outside the U.S.

Working capital, excluding cash and cash equivalents and the current portion of long-term debt, increased slightly during 2020 due to higher inventory and lower accounts payable balances mostly offset by lower accounts receivable balances primarily due to lower fourth quarter sales in the current year. The net reduction in total capitalization during 2020 reflected the net loss for the period and the \$332.0 million net reduction in gross debt.

Cash Flow Overview

	<u>Year Ended December 31,</u>		<u>\$</u>	<u>%</u>
	<u>2020</u>	<u>2019</u>		
Net cash generated by operating activities	\$ 436.2	\$ 596.4	\$ (160.2)	(26.9)%
Net cash used in investing activities	(120.2)	(5,154.9)	5,034.7	NM
Net cash generated by (used in) financing activities	(383.8)	4,698.6	(5,082.4)	(108.2)

NM - Not meaningful

Operating Activities

	Year Ended December 31,	
	2020	2019
Net loss	\$ (573.4)	\$ (929.5)
Adjustments to reconcile net loss to net cash generated by operating activities:		
Depreciation and amortization	823.3	770.9
Equity-based compensation	115.0	90.8
Deferred income taxes	(154.7)	(260.8)
Asset impairments	206.7	376.1
Changes in assets and liabilities:		
Accounts receivable	228.4	258.8
Inventories	(100.5)	489.1
Prepaid expenses and other current assets	(17.2)	19.5
Accounts payable and other accrued liabilities	(175.2)	(274.0)
Other noncurrent liabilities	(4.0)	7.2
Other noncurrent assets	28.8	46.0
Other	59.0	2.3
Net cash generated by operating activities	<u>\$ 436.2</u>	<u>\$ 596.4</u>

During 2020, operating cash flows decreased compared to the prior year due to \$109.0 million paid in the current year related to patent claims and litigation and \$55.7 million in additional interest paid in the current year as a result of Acquisition-related debt.

Investing Activities

	Year Ended December 31,	
	2020	2019
Additions to property, plant and equipment	\$ (121.2)	\$ (104.1)
Proceeds from sale of property, plant and equipment	5.0	1.6
Proceeds from sale of long-term investments	—	9.3
Cash paid for ARRIS acquisition, net of cash acquired	—	(5,053.4)
Cash paid for Cable Exchange acquisition	(3.5)	(11.0)
Other	(0.5)	2.7
Net cash used in investing activities	<u>\$ (120.2)</u>	<u>\$ (5,154.9)</u>

During 2020, our investment in property, plant and equipment was higher due to the incremental time the ARRIS business was owned in the current year compared to the prior year. Our investments in property, plant and equipment were primarily related to supporting improvements in manufacturing operations, including expanding production capacity and investing in information technology, including software developed for internal use. During 2020 and 2019, we sold property and equipment that was no longer being utilized for \$5.0 million and \$1.6 million, respectively. During 2020 and 2019, we paid \$3.5 million and \$11.0 million, respectively, related to our 2017 acquisition of Cable Exchange. The payment in 2020 was the final payment related to the Cable Exchange acquisition. During 2019, we paid \$5.1 billion, net of cash acquired, using a combination of cash on hand, proceeds from the issuance of long-term debt and proceeds from the issuance of the Convertible Preferred Stock to fund the Acquisition.

Financing Activities

	Year Ended December 31,	
	2020	2019
Long-term debt repaid	\$ (1,282.0)	\$ (3,061.3)
Long-term debt proceeds	950.0	6,933.0
Debt issuance costs	(11.7)	(120.8)
Debt extinguishment costs	(17.9)	—
Series A convertible preferred stock proceeds	—	1,000.0
Dividends paid on Series A convertible preferred stock	(14.3)	(40.7)
Deemed dividend paid on Series A convertible preferred stock	—	(3.0)
Proceeds from the issuance of common shares under equity-based compensation plans	9.0	4.6
Tax withholding payments for vested equity-based compensation awards	(16.9)	(13.2)
Net cash generated by (used in) financing activities	<u>\$ (383.8)</u>	<u>\$ 4,698.6</u>

In 2020, we redeemed \$100.0 million aggregate principal amount of the 2021 Notes. We then issued \$700.0 million of the 2028 Notes and used the net proceeds from the offering to redeem and retire the remaining \$700.0 million outstanding under the 2021 Notes and the 2024 Notes. We incurred \$11.7 million of debt issuance costs in connection with the issuance of the 2028 Notes. Also during 2020, we borrowed and repaid \$250.0 million under the Revolving Credit Facility. In addition, we redeemed \$200.0 million aggregate principal amount of the 2025 Notes and paid four quarterly scheduled amortization payments totaling \$32.0 million on the 2026 Term Loan. We paid redemption premiums of \$11.9 million to retire the 2024 Notes and \$6.0 million to partially redeem the 2025 Notes. We may continue to look for favorable opportunities to refinance portions of our existing debt to lower borrowing costs, extend the term or adjust the total amount of fixed or floating-rate debt.

During 2019, we received net proceeds from the Acquisition-related debt of approximately \$6.9 billion to fund the Acquisition. We repaid \$225.0 million of the senior secured term loan due 2022 in the first quarter of 2019 and we repaid the remaining balance of \$261.3 million using proceeds from the 2026 Term Loan. In addition, we redeemed \$500.0 million aggregate principal amount of our 2021 Notes during 2019. We also paid an \$8.0 million scheduled payment during December 2019 related to the 2026 Term Loan. As part of funding the Acquisition, we repaid ARRIS' outstanding debt of \$2.1 billion under its senior secured credit facilities. We also borrowed and repaid \$15.0 million under the Revolving Credit Facility in 2019. In connection with the Acquisition-related debt, we paid \$120.8 million of debt issuance costs during 2019.

As of December 31, 2020, we had no outstanding borrowings under the Revolving Credit Facility and the remaining availability was \$735.1 million, reflecting a borrowing base of \$766.9 million reduced by \$31.8 million of letters of credit issued under the Revolving Credit Facility.

In 2019, in addition to the new debt, we funded the Acquisition by issuing the Convertible Preferred Stock to Carlyle for an aggregate investment of \$1.0 billion. We paid \$3.0 million in transaction fees on Carlyle's behalf related to the Convertible Preferred Stock and we treated that as a deemed dividend during 2019. During 2020 and 2019, we paid \$14.3 million and \$40.7 million, respectively, in cash dividends for the Convertible Preferred Stock. In 2020, we also paid \$41.8 million of dividends in kind for the Convertible Preferred Stock but this was not impactful to our cash flows.

During 2020, we received proceeds of \$9.0 million related to the exercise of stock options. Also during 2020, employees surrendered 1.8 million shares of our common stock to satisfy their tax withholding requirements on vested restricted stock units and performance share units, which reduced cash flows by \$16.9 million. During 2019, we received proceeds of \$4.6 million related to the exercise of stock options and employees surrendered 0.7 million shares of our common stock to satisfy their tax withholding requirements on vested restricted stock units and performance share units, which reduced cash flows by \$13.2 million.

Reconciliation of Non-GAAP Measures

We believe that presenting certain non-GAAP financial measures enhances an investor's understanding of our financial performance. We further believe that these financial measures are useful in assessing our operating performance from period to period by excluding certain items that we believe are not representative of our core business. We also use certain of these financial measures for business planning purposes and in measuring our performance relative to that of our competitors.

We believe these financial measures are commonly used by investors to evaluate our performance and that of our competitors. However, our use of the term non-GAAP adjusted EBITDA may vary from that of others in our industry. This financial measure should not be considered as an alternative to operating income (loss), net income (loss) or any other performance measures derived in accordance with U.S. GAAP as measures of operating performance, operating cash flows or liquidity.

Although there are no financial maintenance covenants under the terms of our senior notes, there is a limitation, among other limitations, on certain future borrowings based on an adjusted leverage ratio or a fixed charge coverage ratio. These ratios are based on financial measures similar to non-GAAP adjusted EBITDA as presented in this section, but also give pro forma effect to certain events, including acquisitions and savings from cost reduction initiatives such as facility closures and headcount reductions.

Consolidated

	Year Ended December 31,		
	2020	2019	2018
Net income (loss)	\$ (573.4)	\$ (929.5)	\$ 140.2
Income tax expense (benefit)	(81.1)	(144.5)	30.5
Interest income	(4.4)	(18.1)	(7.0)
Interest expense	577.8	577.2	242.0
Other expense, net	29.3	6.4	44.3
Operating income (loss)	\$ (51.8)	\$ (508.5)	\$ 450.0
Adjustments:			
Amortization of purchased intangible assets	630.5	593.2	264.6
Restructuring costs, net	88.4	87.7	44.0
Equity-based compensation	115.0	90.8	44.9
Asset impairments	206.7	376.1	15.0
Transaction and integration costs ⁽¹⁾	24.9	195.3	19.5
Acquisition accounting adjustments ⁽²⁾	20.6	264.2	—
Patent claims and litigation settlements	16.3	55.0	—
Executive severance	6.3	—	—
Depreciation	158.3	143.7	75.6
Non-GAAP adjusted EBITDA	<u>\$ 1,215.2</u>	<u>\$ 1,297.5</u>	<u>\$ 913.6</u>

- (1) In 2020 and 2019, primarily reflects transaction and integration costs related to the Acquisition. In 2018, primarily reflects integration costs related to the acquisition of the BNS business and transaction costs related to other potential and consummated acquisitions.
- (2) For the year ended December 31, 2020, reflects acquisition accounting adjustments related to reducing deferred revenue to its estimated fair value. For the year ended December 31, 2019, reflects acquisition accounting adjustments of \$218.8 million related to the mark up of inventory to its estimated fair value and acquisition accounting adjustments of \$45.4 million related to reducing deferred revenue to its estimated fair value.

Reconciliation of Segment Adjusted EBITDA

Segment adjusted EBITDA is provided as a performance measure in Note 17 in the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K. Below we reconcile segment adjusted EBITDA for each segment individually to operating income (loss) for that segment to supplement the reconciliation of the total segment adjusted EBITDA to consolidated operating income (loss) in that footnote.

Broadband Networks Segment

	Year Ended December 31,		
	2020	2019	2018
Operating income (loss)	\$ 171.5	\$ (326.1)	\$ 172.4
Adjustments:			
Amortization of purchased intangible assets	323.1	273.2	76.6
Restructuring costs, net	17.8	36.9	11.7
Equity-based compensation	44.4	35.5	9.4
Asset impairments	—	142.1	3.7
Transaction and integration costs	7.9	120.2	6.3
Acquisition accounting adjustments	11.4	135.8	—
Patent claims and litigation settlements	3.0	—	—
Executive severance	2.2	—	—
Depreciation	59.2	55.6	29.3
Adjusted EBITDA	<u>\$ 640.5</u>	<u>\$ 473.3</u>	<u>\$ 309.4</u>

Home Networks Segment

	Year Ended December 31,		
	2020	2019	2018
Operating loss	\$ (289.7)	\$ (196.0)	\$ —
Adjustments:			
Amortization of purchased intangible assets	103.9	103.9	—
Restructuring costs, net	30.0	23.2	—
Equity-based compensation	22.1	14.1	—
Asset impairments	206.7	192.8	—
Transaction and integration costs	6.2	(2.3)	—
Acquisition accounting adjustments	1.9	27.8	—
Patent claims and litigation settlements	(0.3)	—	—
Executive severance	1.2	—	—
Depreciation	34.3	30.2	—
Adjusted EBITDA	<u>\$ 116.2</u>	<u>\$ 193.7</u>	<u>\$ —</u>

Outdoor Wireless Networks Segment

	Year Ended December 31,		
	2020	2019	2018
Operating income	\$ 181.1	\$ 200.3	\$ 198.4
Adjustments:			
Amortization of purchased intangible assets	45.8	49.5	64.2
Restructuring costs, net	15.7	6.9	17.1
Equity-based compensation	13.6	12.9	12.9
Asset impairments	—	—	7.5
Transaction and integration costs	4.2	19.1	6.0
Patent claims and litigation settlements	—	55.0	—
Executive severance	1.2	—	—
Depreciation	17.0	17.5	17.4
Adjusted EBITDA	<u>\$ 278.5</u>	<u>\$ 361.2</u>	<u>\$ 323.6</u>

Venue and Campus Networks Segment

	Year Ended December 31,		
	2020	2019	2018
Operating income (loss)	\$ (114.7)	\$ (186.7)	\$ 79.2
Adjustments:			
Amortization of purchased intangible assets	157.7	166.6	123.8
Restructuring costs, net	24.9	20.7	15.2
Equity-based compensation	34.9	28.3	22.6
Asset impairments	—	41.2	3.8
Transaction and integration costs	6.7	58.3	7.2
Acquisition accounting adjustments	7.3	100.6	—
Patent claims and litigation settlements	13.7	—	—
Executive severance	1.7	—	—
Depreciation	47.8	40.4	28.9
Adjusted EBITDA	<u>\$ 180.0</u>	<u>\$ 269.3</u>	<u>\$ 280.6</u>

Note: Components may not sum to total due to rounding

Contractual Obligations

During 2020, the Company redeemed \$150.0 million aggregate principal amount of the 2021 Notes, \$650.0 million aggregate principal amount of the 2024 Notes and \$200.0 million aggregate principal amount of the 2025 Notes. Also during 2020, the Company issued \$700.0 million of the 2028 Notes. This table does not include the obligations related to our Series A convertible preferred stock discussed in Note 14 in our Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K.

Contractual Obligations	Total Payments Due	Amount of Payments Due per Period			
		2021	2022-2023	2024-2025	Thereafter
Long-term debt, including current maturities (a)	\$ 9,660.0	\$ 32.0	\$ 64.0	\$ 2,614.0	\$ 6,950.0
Interest on long-term debt (a)(b)	2,813.5	517.0	1,030.8	878.3	387.4
Operating leases	220.9	73.5	85.1	38.6	23.7
Purchase obligations and other supplier agreements (c)	326.8	326.8	—	—	—
Pension and other postretirement benefit liabilities (d)	11.1	8.1	1.0	0.8	1.2
Restructuring costs, net (e)	25.1	21.2	3.9	—	—
Unrecognized tax benefits (f)	—	—	—	—	—
Total contractual obligations	<u>\$13,057.4</u>	<u>\$ 978.6</u>	<u>\$ 1,184.8</u>	<u>\$ 3,531.7</u>	<u>\$ 7,362.3</u>

- (a) No prepayment or redemption of any of our long-term debt balances has been assumed. Refer to Note 8 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for information regarding the terms of our long-term debt agreements.
- (b) Interest on long-term debt excludes the amortization of debt issuance costs and original issue discount. Interest on variable rate debt is estimated based upon rates in effect as of December 31, 2020.
- (c) Purchase obligations and other supplier agreements include \$322.3 million related to obligations, primarily to our contract manufacturers, with non-cancelable terms to purchase goods or services and payments of \$4.5 million due in 2021 for minimum amounts owed under take-or-pay or requirements contracts. Generally, amounts covered by open purchase orders, other than the portion that is noncancelable as disclosed above, are excluded as there is no contractual obligation until goods or services are received.
- (d) Amounts reflect expected contributions related to payments under the postretirement benefit plans through 2030 and expected pension contributions of \$7.5 million in 2021 (see Note 12 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K).
- (e) Future restructuring payments exclude payments due under lease arrangements which are included in operating leases above.
- (f) Due to the uncertainty in predicting the timing of tax payments related to our unrecognized tax benefits, \$153.8 million has been excluded from the presentation. We anticipate a reduction of up to \$8.5 million of unrecognized tax benefits during the next twelve months (see Note 13 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K).

Recent Accounting Pronouncements

See Note 2 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for a discussion of recent accounting pronouncements.

Off-Balance Sheet Arrangements

We were not a party to any significant off-balance sheet arrangements during the year ended December 31, 2020.

Effects of Inflation and Changing Prices

We continually attempt to minimize the effect of inflation on earnings by controlling our operating costs and adjusting our selling prices. The principal raw materials and components purchased by us (memory and chip capacitors, copper, aluminum, steel, optical fiber, plastics and other polymers) are subject to changes in market price as they are influenced by commodity markets and other factors. Prices for these items have, at times, been volatile. As a result, we have adjusted our prices for certain products and may have to adjust prices again in the future. To the extent that we are unable to pass on cost increases to customers without a significant decrease in sales volume or must implement price reductions in response to a rapid decline in raw material costs, these cost changes could have a material adverse impact on the results of our operations.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risks related to changes in interest rates, foreign currency exchange rates and commodity prices. We may utilize derivative financial instruments, among other methods, to hedge some of these exposures. We do not use derivative financial instruments for speculative or trading purposes.

Interest Rate Risk

The table below summarizes the expected interest and principal payments associated with our variable rate debt outstanding at December 31, 2020 (mainly the \$3.2 billion variable rate senior secured term loan due 2026 (the 2026 Term Loan) and our asset-based revolving credit facility). The principal payments presented below are based on scheduled maturities and assume no borrowings under our asset-based revolving credit facility. The interest payments presented below assume the interest rates in effect as of December 31, 2020 (see Note 8 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K). The impact of a 1% increase in the interest rate index on projected future interest payments on the variable rate debt is also included in the table below.

	2021	2022	2023	2024	2025	There- after
Principal and interest payments on variable rate debt	\$ 142.4	\$ 141.3	\$ 140.3	\$ 136.7	\$ 134.4	\$ 3,012.8
Average cash interest rate	3.51%	3.51%	3.51%	3.44%	3.40%	3.40%
Impact of 1% increase in interest rate index	\$ 31.4	\$ 31.1	\$ 30.8	\$ 30.5	\$ 30.2	\$ 3.8

We also have \$6.5 billion aggregate principal amount of fixed rate senior notes. The table below summarizes our expected interest and principal payments related to our fixed rate debt at December 31, 2020.

	2021	2022	2023	2024	2025	There- after
Principal and interest payments on fixed rate debt	\$ 406.6	\$ 406.6	\$ 406.6	\$ 1,622.3	\$ 1,598.9	\$ 4,324.6
Average cash interest rate	6.26%	6.26%	6.26%	6.34%	6.50%	6.94%

As part of our hedging strategy to mitigate a portion of the exposure to changes in cash flows resulting from the variable interest rate on the 2026 Term Loan, in March 2019, we entered into and designated pay-fixed, receive-variable interest rate swap derivatives as cash flow hedges of interest rate risk. The total notional amount of the interest rate swap derivatives as of December 31, 2020 was \$600 million with outstanding maturities of up to thirty-nine months. As of December 31, 2020, the combined fair value of the interest rate swaps was a \$29.9 million loss. The table above excludes the impact of these interest rate swap derivatives. See Note 9 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for further discussion of these contracts.

Foreign Currency Risk

Approximately 39% and 41% of net sales for 2020 and 2019, respectively, were to customers located outside the U.S. Significant changes in foreign currency exchange rates could adversely affect our international sales levels and the related collection of amounts due. In addition, a significant decline in the value of currencies used in certain regions of the world as compared to the U.S. dollar could adversely affect product sales in those regions because our products may become more expensive for those customers to pay for in their local currency. Conversely, significant increases in the value of foreign currencies as compared to the U.S. dollar could adversely affect profitability as certain product costs increase relative to a U.S. dollar-denominated sales price. The foreign currencies to which we have the greatest exposure include the Chinese yuan, euro, Czech koruna, Australian dollar, Indian rupee, Mexican peso and Brazilian real. Local manufacturing provides a partial natural hedge and we continue to evaluate additional alternatives to help us reasonably manage the market risk related to foreign currency exposures.

We use derivative instruments such as forward exchange contracts to manage the risk of fluctuations in the value of certain foreign currencies. As of December 31, 2020, we had foreign exchange contracts with a net unrealized gain of \$8.4 million, with maturities of up to six months and aggregate notional value of \$515.5 million (based on exchange rates as of December 31, 2020). These contracts are not designated as hedges for accounting purposes and are marked to market each period through earnings and, as such, there were no unrecognized gains or losses as of December 31, 2020 or 2019. In addition, we hold certain foreign exchange forward contracts and cross currency swaps designated as net investment hedges to mitigate a portion of the foreign currency risk on the euro net investment in a foreign subsidiary. As of December 31, 2020, the notional value of these derivative contracts was \$300 million, with outstanding maturities of up to six months. The unrealized loss on the contracts was \$21.1 million. Our derivative instruments are not leveraged and are not held for trading or speculation. See Note 9 in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for further discussion of these contracts. We continuously evaluate the amount and type of derivative instruments utilized to manage the market risk related to foreign currency exposures.

Commodity Price Risk

Materials account for a large portion of our cost of sales. These materials, such as copper, aluminum, steel, plastics and other polymers, bimetals and optical fiber, are subject to changes in market price as they are influenced by commodity markets and supply and demand levels, among other factors. Management attempts to mitigate these risks through effective requirements planning and by working closely with key suppliers to obtain the best possible pricing and delivery terms. We may also enter into agreements with certain suppliers to guarantee our access to certain key components. As of December 31, 2020, we had forward purchase commitments outstanding under take-or-pay contracts for certain metals of approximately \$4.5 million that we expect to consume in the normal course of operations through the second quarter of 2021. We continuously evaluate the amount and type of derivative instruments utilized to manage commodity price risk.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of CommScope Holding Company, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of CommScope Holding Company, Inc. (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 16, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the account or disclosures to which it relates.

Valuation of Goodwill

Description of the Matter As more fully described in Note 4 to the consolidated financial statements, at December 31, 2020, the Company's goodwill was \$5,286.5 million. The Company's goodwill is initially assigned to its reporting units as of the acquisition date. Goodwill is tested for impairment at the reporting unit level annually, or more frequently if indicators of potential goodwill impairment exist. During the second quarter of 2020, the Company determined that indicators of goodwill impairment existed for the Home Networks reporting unit and performed an interim goodwill impairment test using a discounted cash flow (DCF) model, which indicated that the carrying value of the Home Networks

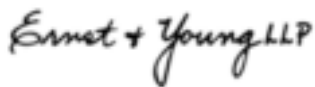
reporting unit exceeded its fair value. As a result, the Company recorded a goodwill impairment charge of \$206.7 million related to the Home Networks reporting unit, which reflects a full impairment of the goodwill of that reporting unit. The Company performed its annual goodwill impairment test for all reporting units in the fourth quarter of 2020 using both a DCF model and a guideline public company approach. No goodwill impairments were identified as a result of the annual goodwill impairment test.

Auditing management's goodwill impairment tests was complex and highly judgmental due to the significant estimation required in determining the fair value of the reporting units. In particular, the fair value estimates were sensitive to changes in significant assumptions such as the discount rate, revenue growth rate and operating income margin, which are affected by expectations about future market or economic conditions, including uncertainty resulting from the COVID-19 pandemic.

*How We
Addressed the
Matter in Our
Audit*

We evaluated the Company's assessments of the impairment of goodwill. We obtained an understanding, evaluated the design and tested the operating effectiveness of controls that address the risks of material misstatement relating to the goodwill impairment tests, including controls over management's development and review of the significant assumptions discussed above.

To test the estimated fair value of the reporting units, we performed audit procedures with the assistance of our valuation specialists that included, among others, assessing methodologies and testing the significant assumptions discussed above and the underlying data used by the Company in its analyses. We compared the significant assumptions of revenue growth rate and operating income margin used by management to current industry and economic trends, changes to the Company's business model, customer base or product mix and other relevant factors. We evaluated the Company's discount rate methodology and developed independent ranges of reasonable discount rates. We also evaluated the reasonableness of the guideline public companies used to develop the fair value estimates of the reporting units. We assessed the historical accuracy of management's estimates and performed sensitivity analyses of significant assumptions to evaluate the changes in the fair value of the reporting units that would result from changes in the assumptions. In addition, we tested management's reconciliation of the fair value of the reporting units to the market capitalization of the Company.

The logo for Ernst & Young LLP, featuring the company name in a stylized, handwritten-style font.

We have served as the Company's auditor since 2008.

Charlotte, North Carolina
February 16, 2021

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of CommScope Holding Company, Inc.

Opinion on Internal Control Over Financial Reporting

We have audited CommScope Holding Company, Inc.'s internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, CommScope Holding Company, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and our report dated February 16, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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.

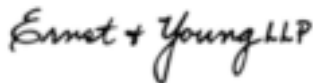
We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, 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.

The signature of Ernst & Young LLP is written in a cursive, handwritten style in black ink.

Charlotte, North Carolina
February 16, 2021

CommScope Holding Company, Inc.
Consolidated Statements of Operations
(In millions, except per share amounts)

	Year Ended December 31,		
	2020	2019	2018
Net sales	\$ 8,435.9	\$ 8,345.1	\$ 4,568.5
Cost of sales	5,688.1	5,941.0	2,935.2
Gross profit	2,747.8	2,404.1	1,633.3
Operating expenses:			
Selling, general and administrative	1,170.7	1,277.1	674.0
Research and development	703.3	578.5	185.7
Amortization of purchased intangible assets	630.5	593.2	264.6
Restructuring costs, net	88.4	87.7	44.0
Asset impairments	206.7	376.1	15.0
Total operating expenses	2,799.6	2,912.6	1,183.3
Operating income (loss)	(51.8)	(508.5)	450.0
Other expense, net	(29.3)	(6.4)	(44.3)
Interest expense	(577.8)	(577.2)	(242.0)
Interest income	4.4	18.1	7.0
Income (loss) before income taxes	(654.5)	(1,074.0)	170.7
Income tax (expense) benefit	81.1	144.5	(30.5)
Net income (loss)	(573.4)	(929.5)	140.2
Series A convertible preferred stock dividend	(56.1)	(40.7)	—
Deemed dividend on Series A convertible preferred stock	—	(3.0)	—
Net income (loss) attributable to common stockholders	<u>\$ (629.5)</u>	<u>\$ (973.2)</u>	<u>\$ 140.2</u>
Earnings (loss) per share:			
Basic	\$ (3.20)	\$ (5.02)	\$ 0.73
Diluted	\$ (3.20)	\$ (5.02)	\$ 0.72
Weighted average shares outstanding:			
Basic	196.8	193.7	192.0
Diluted	196.8	193.7	195.3

See notes to consolidated financial statements.

CommScope Holding Company, Inc.
Consolidated Statements of Comprehensive Income (Loss)
(In millions)

	Year Ended December 31,		
	2020	2019	2018
Comprehensive income (loss):			
Net income (loss)	\$ (573.4)	\$ (929.5)	\$ 140.2
Other comprehensive income (loss), net of tax:			
Foreign currency translation gain (loss)	82.2	(22.2)	(87.7)
Defined benefit plans:			
Change in unrecognized actuarial gain (loss)	(10.8)	(7.7)	23.3
Change in unrecognized net prior service credit	(0.2)	(0.4)	(11.7)
Gain (loss) on hedging instruments	(30.1)	(7.5)	3.5
Total other comprehensive income (loss), net of tax	41.1	(37.8)	(72.6)
Total comprehensive income (loss)	<u>\$ (532.3)</u>	<u>\$ (967.3)</u>	<u>\$ 67.6</u>

See notes to consolidated financial statements.

CommScope Holding Company, Inc.
Consolidated Balance Sheets
(In millions, except share amounts)

	December 31,	
	2020	2019
Assets		
Cash and cash equivalents	\$ 521.9	\$ 598.2
Accounts receivable, less allowance for doubtful accounts of \$40.3 and \$35.4, respectively	1,487.4	1,698.8
Inventories, net	1,088.9	975.9
Prepaid expenses and other current assets	256.3	238.9
Total current assets	3,354.5	3,511.8
Property, plant and equipment, net of accumulated depreciation of \$705.7 and \$553.8, respectively	684.5	723.8
Goodwill	5,286.5	5,471.7
Other intangible assets, net	3,650.4	4,263.6
Other noncurrent assets	600.9	460.7
Total assets	<u>\$ 13,576.8</u>	<u>\$ 14,431.6</u>
Liabilities and Stockholders' Equity		
Accounts payable	\$ 1,010.8	\$ 1,148.0
Accrued and other liabilities	910.6	862.0
Current portion of long-term debt	32.0	32.0
Total current liabilities	1,953.4	2,042.0
Long-term debt	9,488.6	9,800.4
Deferred income taxes	206.2	215.1
Other noncurrent liabilities	531.8	537.8
Total liabilities	12,180.0	12,595.3
Commitments and contingencies		
Series A convertible preferred stock, \$0.01 par value	1,041.8	1,000.0
Stockholders' equity:		
Preferred stock, \$0.01 par value: Authorized shares: 200,000,000; Issued and outstanding shares: 1,041,819 Series A convertible preferred stock	—	—
Common stock, \$0.01 par value: Authorized shares: 1,300,000,000; Issued and outstanding shares: 200,095,232 and 194,563,530, respectively	2.1	2.0
Additional paid-in capital	2,512.9	2,445.1
Retained earnings (accumulated deficit)	(1,752.7)	(1,179.3)
Accumulated other comprehensive loss	(155.9)	(197.0)
Treasury stock, at cost: 9,223,081 shares and 7,411,382 shares, respectively	(251.4)	(234.5)
Total stockholders' equity	355.0	836.3
Total liabilities and stockholders' equity	<u>\$ 13,576.8</u>	<u>\$ 14,431.6</u>

See notes to consolidated financial statements.

CommScope Holding Company, Inc.
Consolidated Statements of Cash Flows
(In millions)

	Year Ended December 31,		
	2020	2019	2018
Operating Activities:			
Net income (loss)	\$ (573.4)	\$ (929.5)	\$ 140.2
Adjustments to reconcile net income (loss) to net cash generated by operating activities:			
Depreciation and amortization	823.3	770.9	357.5
Equity-based compensation	115.0	90.8	44.9
Deferred income taxes	(154.7)	(260.8)	(49.2)
Asset impairments	206.7	376.1	15.0
Changes in assets and liabilities:			
Accounts receivable	228.4	258.8	65.1
Inventories	(100.5)	489.1	(48.5)
Prepaid expenses and other current assets	(17.2)	19.5	1.0
Accounts payable and other accrued liabilities	(175.2)	(274.0)	(0.8)
Other noncurrent liabilities	(4.0)	7.2	(54.6)
Other noncurrent assets	28.8	46.0	(8.0)
Other	59.0	2.3	31.5
Net cash generated by operating activities	436.2	596.4	494.1
Investing Activities:			
Additions to property, plant and equipment	(121.2)	(104.1)	(82.3)
Proceeds from sale of property, plant and equipment	5.0	1.6	12.9
Proceeds from sale of long-term investments	—	9.3	—
Cash paid for ARRIS acquisition, net of cash acquired	—	(5,053.4)	—
Cash paid for Cable Exchange acquisition	(3.5)	(11.0)	—
Other	(0.5)	2.7	5.1
Net cash used in investing activities	(120.2)	(5,154.9)	(64.3)
Financing Activities:			
Long-term debt repaid	(1,282.0)	(3,061.3)	(550.0)
Long-term debt proceeds	950.0	6,933.0	150.0
Debt issuance costs	(11.7)	(120.8)	—
Debt extinguishment costs	(17.9)	—	—
Series A convertible preferred stock proceeds	—	1,000.0	—
Dividends paid on Series A convertible preferred stock	(14.3)	(40.7)	—
Deemed dividend paid on Series A convertible preferred stock	—	(3.0)	—
Proceeds from the issuance of common shares under equity-based compensation plans	9.0	4.6	6.1
Tax withholding payments for vested equity-based compensation awards	(16.9)	(13.2)	(15.7)
Net cash generated by (used in) financing activities	(383.8)	4,698.6	(409.6)
Effect of exchange rate changes on cash and cash equivalents	(8.5)	(0.1)	(16.0)
Change in cash and cash equivalents	(76.3)	140.0	4.2
Cash and cash equivalent at beginning of period	598.2	458.2	454.0
Cash and cash equivalents at end of period	<u>\$ 521.9</u>	<u>\$ 598.2</u>	<u>\$ 458.2</u>

See notes to consolidated financial statements.

CommScope Holding Company, Inc.
Consolidated Statements of Stockholders' Equity
(In millions, except share amounts)

	Year Ended December 31,		
	2020	2019	2018
Number of common shares outstanding:			
Balance at beginning of period	194,563,530	192,376,255	190,906,110
Issuance of shares under equity-based compensation plans	7,343,401	2,854,575	1,878,083
Shares surrendered under equity-based compensation plans	(1,811,699)	(667,300)	(407,938)
Balance at end of period	<u>200,095,232</u>	<u>194,563,530</u>	<u>192,376,255</u>
Common stock:			
Balance at beginning of period	\$ 2.0	\$ 2.0	\$ 2.0
Issuance of shares under equity-based compensation plans	0.1	—	—
Balance at end of period	<u>\$ 2.1</u>	<u>\$ 2.0</u>	<u>\$ 2.0</u>
Additional paid-in capital:			
Balance at beginning of period	\$ 2,445.1	\$ 2,385.1	\$ 2,334.1
Issuance of shares under equity-based compensation plans	8.9	4.6	6.1
Equity-based compensation	115.0	90.8	44.9
Equity-based compensation assumed	—	8.3	—
Dividend on Series A convertible preferred stock	(56.1)	(40.7)	—
Deemed dividend on Series A convertible preferred stock	—	(3.0)	—
Balance at end of period	<u>\$ 2,512.9</u>	<u>\$ 2,445.1</u>	<u>\$ 2,385.1</u>
Retained earnings (accumulated deficit):			
Balance at beginning of period	\$ (1,179.3)	\$ (249.8)	\$ (396.0)
Net income (loss)	(573.4)	(929.5)	140.2
Cumulative effect of change in accounting principle	—	—	6.0
Balance at end of period	<u>\$ (1,752.7)</u>	<u>\$ (1,179.3)</u>	<u>\$ (249.8)</u>
Accumulated other comprehensive loss:			
Balance at beginning of period	\$ (197.0)	\$ (159.2)	\$ (86.6)
Other comprehensive income (loss), net of tax	41.1	(37.8)	(72.6)
Balance at end of period	<u>\$ (155.9)</u>	<u>\$ (197.0)</u>	<u>\$ (159.2)</u>
Treasury stock, at cost:			
Balance at beginning of period	\$ (234.5)	\$ (221.3)	\$ (205.6)
Net shares surrendered under equity-based compensation plans	(16.9)	(13.2)	(15.7)
Balance at end of period	<u>\$ (251.4)</u>	<u>\$ (234.5)</u>	<u>\$ (221.3)</u>
Total stockholders' equity	<u>\$ 355.0</u>	<u>\$ 836.3</u>	<u>\$ 1,756.8</u>

See notes to consolidated financial statements.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements
(In millions, unless otherwise noted)

1. BACKGROUND AND DESCRIPTION OF THE BUSINESS

CommScope Holding Company, Inc., along with its direct and indirect subsidiaries (CommScope or the Company), is a global provider of infrastructure solutions for communication and entertainment networks. The Company's solutions for wired and wireless networks enable service providers including cable, telephone and digital broadcast satellite operators and media programmers to deliver media, voice, Internet Protocol (IP) data services and Wi-Fi to their subscribers and allow enterprises to experience constant wireless and wired connectivity across complex and varied networking environments. The Company's solutions are complemented by a broad array of services including technical support, systems design and integration. CommScope is a leader in digital video and IP television distribution systems, broadband access infrastructure platforms and equipment that delivers data and voice networks to homes. CommScope's global leadership position is built upon innovative technology, broad solution offerings, high-quality and cost-effective customer solutions, and global manufacturing and distribution scale.

On April 4, 2019, the Company completed the acquisition of ARRIS International plc (ARRIS) (the Acquisition) in an all-cash transaction with a total purchase price of approximately \$7.7 billion, including debt assumed. See Note 3 for additional discussion of the Acquisition.

As of January 1, 2020, the Company reorganized its internal management and reporting structure as part of the integration of the Acquisition. The reorganization changed the information regularly reviewed by the Company's chief operating decision maker for purposes of allocating resources and assessing performance. As a result, the Company now reports financial performance for the 2020 year based on four operating segments: Broadband Networks (Broadband), Home Networks (Home), Outdoor Wireless Networks (OWN) and Venue and Campus Networks (VCN). These four segments represent non-aggregated reportable operating segments. Prior to this change, the Company operated and reported five operating segments: Connectivity Solutions, Mobility Solutions, Customer Premises Equipment, Network and Cloud and Ruckus Networks. All prior period amounts in these consolidated financial statements have been recast to reflect these operating segment changes.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Consolidation

The accompanying consolidated financial statements include CommScope Holding Company, Inc., along with its direct and indirect subsidiaries. All intercompany accounts and transactions are eliminated in consolidation.

Certain prior year amounts have been reclassified to conform to the current year presentation.

Use of Estimates in the Preparation of the Financial Statements

The preparation of the accompanying consolidated financial statements in conformity with accounting principles generally accepted in the United States (U.S.) requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. These estimates and their underlying assumptions form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other objective sources. The Company bases its estimates on historical experience and on assumptions that are believed to be reasonable under the circumstances and revises its estimates, as appropriate, when events or changes in circumstances indicate that revisions may be necessary. Significant accounting estimates reflected in the Company's financial statements include the allowance for doubtful accounts; reserves for sales returns, discounts, allowances, rebates and distributor price protection programs; inventory excess and obsolescence reserves; product warranty reserves and other contingent liabilities; tax valuation allowances; liabilities for unrecognized tax benefits; purchase price allocations; impairment reviews for investments, property, plant and equipment, goodwill and other intangible assets; and pension and other postretirement benefit costs and liabilities. Although these estimates are based on management's knowledge of and experience with past and current events and on management's assumptions about future events, it is at least reasonably possible that they may ultimately differ materially from actual results.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Cash and Cash Equivalents

Cash and cash equivalents represent deposits in banks and cash invested temporarily in various instruments with a maturity of three months or less at the time of purchase.

Accounts Receivable and Allowance for Doubtful Accounts

Trade accounts receivable and contract assets for unbilled receivables are stated at the amount owed by the customer, net of allowances for estimated doubtful accounts, discounts, returns and rebates. The Company measures the allowance for doubtful accounts using an expected credit loss model, which uses a lifetime expected loss allowance for all trade accounts receivable and contract assets. To measure the expected credit losses, trade accounts receivable and contract assets are grouped based on shared credit risk characteristics and the days past due. Contract assets relate to unbilled work in progress and have substantially the same risk characteristics as trade accounts receivable for the same types of contracts. Therefore, the Company has concluded that the expected loss rates for trade accounts receivables are a reasonable approximation of the loss rates for the contract assets.

In calculating an allowance for doubtful accounts, the Company uses its historical experience, external indicators and forward-looking information to calculate expected credit losses using an aging method. The Company assesses impairment of trade accounts receivable on a collective basis as they possess shared credit risk characteristics which have been grouped based on the days past due.

The expected loss rates are based on the payment profiles of sales over the preceding thirty-six months and the corresponding historical credit losses experienced within this period. The historical loss rates are adjusted to reflect current and forward-looking information on macroeconomic factors affecting the ability of the customers to settle their trade accounts receivable.

Inventories

Inventories are stated at the lower of cost or net realizable value. Inventory cost is determined on a first-in, first-out (FIFO) basis. Costs such as idle facility expense, excessive scrap and re-handling costs are expensed as incurred. The Company maintains reserves to reduce the value of inventory to the lower of cost or net realizable value, including reserves for excess and obsolete inventory.

Long-Lived Assets

Property, Plant and Equipment

Property, plant and equipment are stated at cost. Upon application of acquisition accounting, property, plant and equipment are measured at estimated fair value as of the acquisition date to establish a new historical cost basis. Provisions for depreciation are based on estimated useful lives of the assets using the straight-line method. Useful lives generally range from 10 to 35 years for buildings and improvements and 3 to 10 years for machinery and equipment. Expenditures for repairs and maintenance are expensed as incurred. Assets that management intends to dispose of and that meet held for sale criteria are carried at the lower of the carrying value or fair value less costs to sell.

Goodwill and Other Intangible Assets

Goodwill is assigned to reporting units based on the difference between the purchase price as allocated to the reporting units and the estimated fair value of the identified net assets acquired as allocated to the reporting units. Purchased intangible assets with finite lives are carried at their estimated fair values at the time of acquisition less accumulated amortization and any impairment charges. Amortization is recognized on a straight-line basis over the estimated useful lives of the respective assets.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Asset Impairments

Goodwill is tested for impairment annually or at other times if events have occurred or circumstances exist that indicate the carrying value of the reporting unit may exceed its fair value. Property, plant and equipment and intangible assets with finite lives are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable, based on the undiscounted cash flows expected to be derived from the use and ultimate disposition of the assets. Assets identified as impaired are carried at estimated fair value. Equity investments without readily determinable fair values are evaluated each reporting period for impairment based on a qualitative assessment and are then measured at fair value if an impairment is determined to exist. See Notes 4 and 10 for discussion of asset impairment charges.

Income Taxes

Deferred income taxes reflect the future tax consequences of differences between the financial reporting and tax basis of assets and liabilities. The Company records a valuation allowance, when appropriate, to reduce deferred tax assets to an amount that is more likely than not to be realized.

Tax benefits that result from uncertain tax positions may be recognized only if they are considered more likely than not to be sustainable, based on their technical merits. The amount of benefit to be recognized is the largest amount of tax benefit that is at least 50% likely to be realized.

In addition, the Company does not provide for U.S. taxes related to the foreign currency remeasurement gains and losses on its long-term intercompany loans with foreign subsidiaries. These loans are not expected to be repaid in the foreseeable future, and the foreign currency gains and losses are therefore recorded to accumulated other comprehensive loss.

The Company records the income tax effects related to the activity of its defined benefit plans and hedging instruments in accumulated other comprehensive loss at the currently enacted tax rate and reclassifies it to net income in the same period that the related pre-tax accumulated comprehensive income reclassifications are recognized.

Revenue Recognition

The Company recognizes revenue based on the satisfaction of distinct obligations to transfer goods and services to customers. The Company's revenue is generated primarily from product or equipment sales. The Company also generates revenue from custom design and installation services as well as bundled sales arrangements that include product, software and services. Revenue is recognized when performance obligations in a contract are satisfied through the transfer of control of the good or service at the amount of consideration expected to be received. The following are required before revenue is recognized:

- Identify the contract with the customer. A variety of arrangements are considered contracts; however, contracts typically take the form of a master purchase agreement or customer purchase orders.
- Identify the performance obligations in the contract. Performance obligations are identified as promised goods or services that are distinct within an arrangement.
- Determine the transaction price. The transaction price is the amount of consideration the Company expects to receive in exchange for transferring the promised goods or services. The consideration may include fixed or variable amounts or both.
- Allocate the transaction price to the performance obligations. The transaction price is allocated to the performance obligations on a relative standalone selling price basis.
- Recognize revenue as the performance obligations are satisfied. Revenue is recognized when transfer of control of the promised goods or services has occurred. This is either at a point in time or over time.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Product sales represent over 90% of the Company's revenue. For these sales, revenue is recognized when control of the product has transferred to the customer, which is generally at the point in time when products have been shipped, right to payment has been obtained and risk of loss has been transferred. Certain of the Company's product performance obligations include proprietary operating system software, which typically is not considered separately identifiable. Therefore, sales of these products and the related software are considered one performance obligation.

License contracts include revenue recognized for the licensing of intellectual property, including software, sold separately without products. Functional intellectual property licenses do not meet the criteria for revenue to be recognized over time and revenue is most commonly recognized upon delivery of the license/software to the customer.

Certain customer transactions may be project based and include multiple performance obligations based on the bundling of equipment, software and services. When a multiple performance obligation arrangement exists, the transaction price is allocated to the performance obligations based on their relative standalone selling price, and revenue is recognized upon transfer of control of each deliverable. To determine the standalone selling price, the Company first looks to establish the standalone selling price through an observable price when the good or service is sold separately in similar circumstances. If the standalone selling price cannot be established through an observable price, the Company will make an estimate based on market conditions, customer specific factors and customer class. The Company may use a combination of approaches to estimate the standalone selling price.

For performance obligations recognized over time, judgment is required to evaluate assumptions, including the total estimated costs to determine progress towards completion of the performance obligation and to calculate the corresponding amount of revenue to recognize. If estimated total costs on any contract are greater than the net contract revenues, the entire estimated costs are recorded in the period in which the revisions to estimates are identified and the amounts can be reasonably estimated.

Other customer contract types include a variety of post-contract support services offerings, including:

- Maintenance and support services provided under annual service-level agreements with the Company's customers. These services represent stand-ready obligations that are recognized over time (on a straight-line basis over the contract period) because the customer simultaneously receives and consumes the benefits of the services as the services are performed.
- Professional services and other similar services consist primarily of "Day 2" services to help customers maximize their utilization of deployed systems. The services are recognized over time because the customer simultaneously receives and consumes the benefits of the service as the services are performed.
- Installation services relate to the routine installation of equipment ordered by the customer at the customer's site and are distinct performance obligations from delivery of the related hardware. The associated revenues are recognized over time as the services are provided.

Revenue is measured based on the consideration the Company expects to be entitled based on customer contracts. For sales to distributors, system integrators and value-added resellers, revenue is adjusted for variable consideration amounts, including but not limited to estimated discounts, returns, rebates and distributor price protection programs. These estimates are determined based upon historical experience, contract terms, inventory levels in the distributor channel and other related factors. Adjustments to variable consideration estimates are recorded when circumstances indicate revisions may be necessary.

A contract liability for deferred revenue is recorded when consideration is received or is unconditionally due from a customer prior to transferring control of goods or services to the customer under the terms of a contract. Deferred revenue balances typically result from advance payments received from customers for product contracts or from billings in excess of revenue recognized on project or services arrangements.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Unbilled receivables are recorded when revenues are recognized in advance of invoice issuance. A contract asset is any portion of unbilled receivables for which the right to consideration is conditional on a factor other than the passage of time, which is common for certain project contract performance obligations. These assets are presented on a combined basis with accounts receivable and are converted to accounts receivable once the Company's right to the consideration becomes unconditional, which varies by contract but is generally based on achieving certain acceptance milestones. The Company recognizes the incremental costs of obtaining a contract as an expense when incurred if the amortization period of the asset would be one year or less.

The Company includes shipping and handling costs billed to customers in net sales and includes the costs incurred to transport product to customers as well as certain internal handling costs, which relate to activities to prepare goods for shipment, as cost of sales. Shipping and handling costs incurred after control is transferred to the customer are accounted for as fulfillment costs and are not accounted for as separate revenue obligations.

Leases

The Company determines if a contract is a lease or contains a lease at inception. Right of use assets related to operating type leases are reported in other noncurrent assets and the present value of remaining lease obligations is reported in accrued and other liabilities and other noncurrent liabilities on the Consolidated Balance Sheets. For the periods presented, CommScope does not have any financing type leases.

Operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The majority of the Company's leases do not provide an implicit rate; therefore, the Company uses the incremental borrowing rates applicable to the economic environment and the duration of the lease, based on the information available at commencement date, in determining the present value of future payments. The right of use asset for operating leases is measured using the lease liability adjusted for the impact of lease payments made prior to commencement, lease incentives received, initial direct costs incurred and any asset impairments. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the option will be exercised. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

The Company remeasures and reallocates the consideration in a lease when there is a modification of the lease that is not accounted for as a separate contract. The lease liability is remeasured when there is a change in the lease term or a change in the assessment of whether the Company will exercise a lease option. The Company assesses right of use assets for impairment in accordance with its long-lived asset impairment policy.

The Company accounts for lease agreements with contractually required lease and non-lease components on a combined basis. Lease payments made for cancellable leases, variable amounts that are not based on an observable index and lease agreements with an original duration of less than twelve months are recorded directly to lease expense.

Tax Collected from Customers

Taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction, which are collected by the Company from customers, are excluded from net sales.

Product Warranties

The Company recognizes a liability for the estimated claims that may be paid under its customer assurance-type warranty agreements to remedy potential deficiencies of quality or performance of the Company's products. These product warranties extend over various periods, depending on the product subject to the warranty and the terms of the individual agreements. The Company records a provision for estimated future warranty claims as cost of sales based upon the historical relationship of warranty claims to sales and specifically identified warranty issues. The Company bases its estimates on assumptions that are believed to be reasonable under the circumstances and revises its estimates, as appropriate, when events or changes in circumstances indicate that revisions may be necessary. Such revisions may be material.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Advertising Costs

Advertising costs are expensed in the period in which they are incurred. Advertising expense was \$45.9 million, \$39.5 million and \$17.3 million for the years ended December 31, 2020, 2019 and 2018, respectively.

Research and Development

Research and development (R&D) costs are expensed in the period in which they are incurred. R&D costs include materials and equipment that have no alternative future use, depreciation on equipment and facilities currently used for R&D purposes, personnel costs, contract services and reasonable allocations of indirect costs, if clearly related to an R&D activity. Expenditures in the pre-production phase of an R&D project are recorded as R&D expense. However, costs incurred in the pre-production phase that are associated with output actually used in production are recorded in cost of sales. A project is considered finished with pre-production efforts when management determines that it has achieved acceptable levels of scrap and yield, which vary by project. Expenditures related to ongoing production are recorded in cost of sales.

Derivative Instruments and Hedging Activities

CommScope is exposed to risks resulting from adverse fluctuations in commodity prices, interest rates and foreign currency exchange rates. CommScope's risk management strategy includes the use of derivative financial instruments whenever management determines their use to be reasonable and practical. This strategy does not permit the use of derivative financial instruments for trading or speculation.

The Company uses forward contracts to hedge a portion of its balance sheet foreign exchange re-measurement risk and to hedge certain planned foreign currency expenditures. Unrealized gains and losses resulting from these contracts are recognized in other expense, net and partially offset corresponding foreign exchange gains and losses on the balances and expenditures being hedged. These instruments are not designated as hedges for hedge accounting purposes and are marked to market each period through earnings.

The Company has a hedging strategy to designate certain foreign currency contracts as net investment hedges to mitigate a portion of the foreign currency risk on the euro net investment in a foreign subsidiary. Hedge effectiveness is assessed each quarter based on the net investment in the foreign subsidiary designated as the hedged item and the changes in the fair value of designated foreign currency contracts based on spot rates. For hedges that meet the effectiveness requirements, changes in fair value are recorded as a component of other comprehensive income (loss), net of tax. Amounts excluded from hedge effectiveness at inception under the spot method for designated forward contracts are recognized on a straight-line basis over the life of each contract and for designated cross-currency swap contracts are recognized as interest accrues.

The Company also has a hedging strategy to mitigate a portion of the exposure to changes in cash flows resulting from variable interest rates on the senior secured term loan due 2026 which are based on the one-month LIBOR benchmark rate (see Note 8). Hedge effectiveness is assessed each quarter, and for hedges that meet the effectiveness requirements, changes in fair value are recorded as a component of other comprehensive income (loss), net of tax, and are reclassified to interest expense as interest payments are made on the Company's variable rate debt.

The Company has elected and documented the use of the normal purchases and sales exception for normal purchase and sales contracts that meet the definition of a derivative financial instrument. See Note 9 for further disclosure related to the derivative instruments and hedging activities.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Foreign Currency Translation

For the years ended December 31, 2020, 2019 and 2018, approximately 39%, 41% and 44%, respectively, of the Company's net sales were to customers located outside the U.S. A portion of these sales were denominated in currencies other than the U.S. dollar, particularly sales from the Company's foreign subsidiaries. The financial position and results of operations of certain of the Company's foreign subsidiaries are measured using the local currency as the functional currency. Revenues and expenses of these subsidiaries have been translated into U.S. dollars at average exchange rates prevailing during the period. Assets and liabilities of these subsidiaries have been translated at the exchange rates as of the balance sheet date. Translation gains and losses are recorded in accumulated other comprehensive loss. Upon sale or liquidation of an investment in a foreign subsidiary, the amount of net translation gains or losses that have been accumulated in other comprehensive loss attributable to that investment are reported as a gain or loss in earnings in the period in which the sale or liquidation occurs.

Aggregate foreign currency gains and losses, such as those resulting from the settlement of receivables or payables, foreign currency contracts and short-term intercompany advances in a currency other than the subsidiary's functional currency, are recorded currently in earnings (included in other expense, net) and resulted in losses of \$19.2 million, \$11.9 million and \$15.9 million during the years ended December 31, 2020, 2019 and 2018, respectively. Foreign currency remeasurement gains and losses related to certain long-term intercompany loans that are not expected to be settled in the foreseeable future and the effective portion of foreign currency contracts designated as net investment hedges are recorded in accumulated other comprehensive loss. See Note 9 for disclosure of foreign currency gains and losses specifically related to foreign currency contracts.

Equity-Based Compensation

The estimated fair value of stock awards is recognized as expense over the requisite service periods. Forfeitures of stock awards are recognized as they occur. The Company records deferred tax assets related to compensation expense for awards that are expected to result in future tax deductions for the Company, based on the amount of compensation cost recognized and the Company's statutory tax rate in the jurisdiction in which it expects to receive a deduction. Differences between the deferred tax assets recognized for financial reporting purposes and actual tax deductions reported on the Company's income tax return are recorded in the Consolidated Statements of Operations within income tax expense.

Earnings (Loss) Per Share

Basic earnings (loss) per share (EPS) is computed by dividing net income (loss), less any dividends and deemed dividends related to the Series A convertible preferred stock (the Convertible Preferred Stock), by the weighted average number of common shares outstanding during the period. The numerator in diluted EPS is based on the basic EPS numerator adjusted to add back any dividends and deemed dividends related to the Convertible Preferred Stock, subject to antidilution requirements. The denominator used in diluted EPS is based on the basic EPS computation plus the effect of potentially dilutive common shares related to the Convertible Preferred Stock and equity-based compensation plans, subject to antidilution requirements.

For the years ended December 31, 2020, 2019 and 2018, 17.4 million, 11.2 million and 2.1 million shares, respectively, of outstanding equity-based compensation awards were not included in the computation of diluted EPS because the effect was either antidilutive or the performance conditions were not met. Of those amounts, for the years ended December 31, 2020 and 2019, 4.4 million and 2.4 million shares, respectively, would have been considered dilutive if the Company had not been in a net loss position.

For the years ended December 31, 2020 and 2019, 37.1 million and 27.0 million, respectively, of as-if converted shares related to the Convertible Preferred Stock were excluded from the diluted share count because they were antidilutive; however, they would have been considered dilutive if the Company had not been in a net loss position.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

	Year ended December 31,		
	2020	2019	2018
Numerator:			
Net income (loss)	\$ (573.4)	\$ (929.5)	\$ 140.2
Dividends on Series A convertible preferred stock	(56.1)	(40.7)	—
Deemed dividends on Series A convertible preferred stock	—	(3.0)	—
Net income (loss) attributable to common stockholders	<u>\$ (629.5)</u>	<u>\$ (973.2)</u>	<u>\$ 140.2</u>
Denominator:			
Weighted average common shares outstanding - basic	196.8	193.7	192.0
Dilutive effect of as-if converted Series A convertible preferred stock	—	—	—
Dilutive effect of equity-based awards	—	—	3.3
Weighted average common shares outstanding - diluted	<u>196.8</u>	<u>193.7</u>	<u>195.3</u>
Earnings (loss) per share:			
Basic	\$ (3.20)	\$ (5.02)	\$ 0.73
Diluted	\$ (3.20)	\$ (5.02)	\$ 0.72

Business Combinations

The Company uses the acquisition method of accounting for business combinations which requires the tangible and intangible assets acquired and liabilities assumed to be recorded at their respective fair market value as of the acquisition date. Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired. The fair values of the assets acquired and liabilities assumed are determined based upon the Company's valuation and involves making significant estimates and assumptions based on facts and circumstances that existed as of the acquisition date. The Company uses a measurement period following the acquisition date to gather information that existed as of the acquisition date that is needed to determine the fair value of the assets acquired and liabilities assumed. The measurement period ends once all information is obtained, but no later than one year from the acquisition date.

Concentrations of Risk

Non-derivative financial instruments used by the Company in the normal course of business include letters of credit and commitments to extend credit, primarily accounts receivable. The Company generally does not require collateral on its accounts receivable. These financial instruments involve risk, including the credit risk of nonperformance by the counterparties to those instruments, and the actual loss may exceed the reserves provided in the Company's Consolidated Balance Sheets. See Note 17 for further discussion of customer-related concentrations of risk.

The Company manages its exposures to credit risk associated with accounts receivable using such tools as credit approvals, credit limits and monitoring procedures. CommScope estimates the allowance for doubtful accounts based on the actual payment history and individual circumstances of significant customers as well as the age of receivables. In management's opinion, as of December 31, 2020, the Company did not have significant unreserved risk of credit loss due to the non-performance of customers or other counterparties related to amounts receivable. However, an adverse change in financial condition of a significant customer or group of customers or in the telecommunications industry could materially affect the Company's estimates related to doubtful accounts.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The principal raw materials purchased by CommScope (aluminum, bimetals, copper, optical fiber, plastics and other polymers and steel) are subject to changes in market price as these materials are linked to various commodity markets. The Company attempts to mitigate these risks through effective requirements planning and by working closely with its key suppliers to obtain the best possible pricing and delivery terms.

The Company relies on sole suppliers or a limited group of suppliers for certain key components (memory and chip capacitors), subassemblies and modules and a limited group of contract manufacturers to manufacture a significant portion of its products. Any disruption or termination of these arrangements could have a material adverse impact on the Company's results of operations.

Recent Accounting Pronouncements

Adopted in 2020

On January 1, 2020, the Company adopted ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments* and subsequent amendments to the initial guidance: ASU No. 2018-19, ASU No. 2019-04, ASU No. 2019-05 and ASU No. 2020-02 (collectively, Topic 326). The new guidance replaces the incurred loss methodology with the current expected credit loss (CECL) methodology. The measurement of expected credit losses under the CECL methodology is applicable to financial assets measured at amortized cost, including trade accounts receivable. It also applies to off-balance sheet credit exposures not accounted for as insurance (loan commitments, standby letters of credit, financial guarantees, and other similar instruments) and net investments in leases recognized by a lessor in accordance with Topic 842.

The Company adopted Topic 326 using the modified retrospective method for all financial assets measured at amortized cost, which are primarily trade accounts receivable and contract assets for the Company. Results for reporting periods beginning after January 1, 2020 are presented under Topic 326 while prior period amounts continue to be reported in accordance with previously applicable U.S. GAAP. The impact of adopting Topic 326 as of January 1, 2020 was not material to the consolidated financial statements.

Issued but Not Adopted

In August 2020, the Financial Accounting Standards Board (FASB) issued ASU No. 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*. The new guidance simplifies the accounting for convertible instruments by reducing the number of accounting models available for convertible debt instruments and convertible preferred stock and amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions and requires the application of the if-converted method for calculating diluted earnings per share, along with expanded disclosures. ASU No. 2020-06 is effective for the Company as of January 1, 2022 and early adoption is permitted beginning January 1, 2021. The Company is currently evaluating the impact of the new guidance on the consolidated financial statements.

In March 2020, the FASB issued ASU No. 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, which provides temporary optional guidance to ease the potential burden in accounting for reference rate reform. The new guidance provides optional expedients and exceptions for applying generally accepted accounting principles to transactions affected by reference rate reform if certain criteria are met. These transactions include contract modifications, hedging relationships, and sale or transfer of debt securities classified as held-to-maturity. The Company can elect to apply the amendments as of March 12, 2020 through December 31, 2022. The Company is currently evaluating the impact of this guidance on the consolidated financial statements.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

In January 2020, the FASB issued ASU No. 2020-01, *Investments – Equity Securities (Topic 321), Investments – Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815)*. The new guidance is based on a consensus of the Emerging Issues Task Force and is expected to increase comparability in accounting for these transactions. The amendments in this guidance clarify the interaction of accounting for equity securities under Topic 321 and investments accounted for under the equity method of accounting in Topic 323 and the accounting for certain forward contracts and purchased options accounted for under Topic 815. ASU No. 2020-01 is effective for the Company as of January 1, 2021. The Company anticipates that the adoption of this new guidance will not have a material impact on the consolidated financial statements.

In December 2019 the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*. The new guidance simplifies the accounting for income taxes by removing certain exceptions to the general principles in Topic 740 and clarifying and amending existing guidance. This guidance is effective for fiscal years, and interim periods within those fiscal years, beginning January 1, 2021 for the Company. The Company is currently evaluating the impact of the new guidance on the consolidated financial statements and disclosures.

3. ACQUISITION

On April 4, 2019, the Company acquired all of the issued ordinary shares of ARRIS in an all cash transaction with a total consideration of approximately \$7.7 billion, including debt assumed. ARRIS is a global leader in entertainment, communications and networking technology. The Company acquired ARRIS to drive profitable growth in new markets, shape the future of wired and wireless communications, and position the Company to benefit from key industry trends, including network convergence, fiber and mobility everywhere, 5G, Internet of Things and rapidly changing network and technology architectures.

The following table summarizes the estimated fair values of the assets acquired and liabilities assumed at the acquisition date:

	<u>Estimated Fair Value</u>
Assets	
Cash and cash equivalents	\$ 556.1
Accounts receivable	1,155.0
Inventory	995.5
Other current assets	132.0
Property, plant and equipment	316.6
Goodwill	2,981.4
Identifiable intangible assets	3,509.6
Other noncurrent assets	447.7
Less: Liabilities assumed	
Current liabilities	(1,534.8)
Debt	(2,052.0)
Other noncurrent liabilities	(889.3)
Net acquisition cost	<u>\$ 5,617.8</u>

The Company finalized the accounting for the business combination in the first quarter of 2020 and goodwill has been assigned accordingly. The goodwill arising from the Acquisition is believed to result from ARRIS' reputation in the marketplace and assembled workforce and is not expected to be deductible for income tax purposes.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

4. GOODWILL AND OTHER INTANGIBLE ASSETS

The following table presents details of the Company's intangible assets other than goodwill as of December 31, 2020 and 2019:

	2020			2019		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer base	\$ 3,524.1	\$ 1,563.2	\$ 1,960.9	\$ 3,503.3	\$ 1,318.8	\$ 2,184.5
Trade names and trademarks	1,024.3	376.6	647.7	1,021.9	308.3	713.6
Patents and technologies	2,039.7	997.9	1,041.8	2,021.6	656.1	1,365.5
Other	58.3	58.3	—	58.3	58.3	—
Total intangible assets	<u>\$ 6,646.4</u>	<u>\$ 2,996.0</u>	<u>\$ 3,650.4</u>	<u>\$ 6,605.1</u>	<u>\$ 2,341.5</u>	<u>\$ 4,263.6</u>

There were no impairments of finite-lived intangible assets identified during the years ended December 31, 2020, 2019 or 2018.

Amortization expense for intangible assets was \$630.5 million, \$593.2 million and \$264.6 million for the years ended December 31, 2020, 2019 and 2018, respectively. Future amortization expense as of December 31, 2020 is as follows:

	Estimated Amortization Expense
2021	\$ 614.4
2022	547.4
2023	433.4
2024	346.1
2025	280.8
Thereafter	1,428.3

The following table presents goodwill by reportable segment. Foreign currency fluctuations are included within other adjustments. Additions (deductions) reflect the preliminary allocation and subsequent measurement period adjustments of the Company's acquisition of ARRIS, which was completed in 2020.

	December 31, 2019						December 31, 2020		
	Goodwill	Accumulated Impairment Losses	Total	Additions (Deductions)	Impairment	Other	Goodwill	Accumulated Impairment Losses	Total
Broadband	\$ 3,355.1	\$ (193.6)	\$ 3,161.5	\$ (7.1)	\$ —	\$ 21.7	\$ 3,369.7	\$ (193.6)	\$ 3,176.1
Home	402.1	(192.8)	209.3	(1.3)	(206.7)	(1.3)	399.5	(399.5)	—
OWN	666.0	(159.5)	506.5	—	—	3.1	669.1	(159.5)	509.6
VCN	1,635.6	(41.2)	1,594.4	(1.4)	—	7.8	1,642.0	(41.2)	1,600.8
Total	<u>\$ 6,058.8</u>	<u>\$ (587.1)</u>	<u>\$ 5,471.7</u>	<u>\$ (9.8)</u>	<u>\$ (206.7)</u>	<u>\$ 31.3</u>	<u>\$ 6,080.3</u>	<u>\$ (793.8)</u>	<u>\$ 5,286.5</u>

	December 31, 2018						December 31, 2019		
	Goodwill	Accumulated Impairment Losses	Total	Additions (Deductions)	Impairment	Other	Goodwill	Accumulated Impairment Losses	Total
Broadband	\$ 1,180.6	\$ (51.5)	\$ 1,129.1	\$ 2,171.2	\$ (142.1)	\$ 3.3	\$ 3,355.1	\$ (193.6)	\$ 3,161.5
Home	—	—	—	403.0	(192.8)	(0.9)	402.1	(192.8)	209.3
OWN	666.4	(159.5)	506.9	—	—	(0.4)	666.0	(159.5)	506.5
VCN	1,216.3	—	1,216.3	417.0	(41.2)	2.3	1,635.6	(41.2)	1,594.4
Total	<u>\$ 3,063.3</u>	<u>\$ (211.0)</u>	<u>\$ 2,852.3</u>	<u>\$ 2,991.2</u>	<u>\$ (376.1)</u>	<u>\$ 4.3</u>	<u>\$ 6,058.8</u>	<u>\$ (587.1)</u>	<u>\$ 5,471.7</u>

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The Company's change in segments as of January 1, 2020 resulted in a realignment of its existing reporting units. Although the reporting units were realigned under the new segments, the Company's reporting units remained the same except for where two reporting units have been combined into a new reporting unit. In this case, goodwill was simply combined in the new reporting units. Since the composition of the reporting units and the assignment of goodwill to the reporting units were unaffected, an interim goodwill impairment test due to the change in segments was not performed in the first quarter of 2020.

During the second quarter of 2020, the Company determined that indicators of goodwill impairment existed for the Home Networks reporting unit due to lower projected operating results, primarily from the accelerated decline in video devices. This trend was projected to continue as consumers adopt the use of other streaming applications and was further impacted by the macro-economic effects caused by the new strain of coronavirus (COVID-19). The Company performed a quantitative goodwill impairment test during the second quarter of 2020 and recorded a \$206.7 million goodwill impairment charge during the second quarter 2020 relating to the Home Networks reporting unit. It is reflected in the asset impairments line on the Consolidated Statements of Operations for the year ended December 31, 2020. This reflected a full impairment of the remaining goodwill in the Home segment, and as such, the Home segment has no remaining goodwill balance as of December 31, 2020.

There were no goodwill impairments identified as a result of the annual impairment test performed in the fourth quarter of 2020. For the year ended December 31, 2019, the Company recorded goodwill impairment charges totaling \$376.1 million, of which \$142.1 million related to the Network and Cloud reporting unit, \$192.8 million related to the Home Networks reporting unit and \$41.2 million related to the Ruckus reporting unit. There were no goodwill impairments identified for the year ended December 31, 2018.

Estimating the fair value of a reporting unit involves uncertainties because it requires management to develop numerous assumptions, including assumptions about the future growth and potential volatility in revenues and costs, capital expenditures, industry economic factors and future business strategy. Changes in projected revenue growth rates, projected operating income margins or estimated discount rates due to uncertain market conditions, loss of one or more key customers, changes in the Company's strategy, changes in technology or other factors could negatively affect the fair value in one or more of the Company's reporting units and result in a material impairment charge in the future.

5. REVENUE FROM CONTRACTS WITH CUSTOMERS

Disaggregated Net Sales

The following table presents net sales by reportable segment, disaggregated based on contract type:

	Year Ended December 31,									
	Broadband		Home		OWN		VCN		Total	
	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
Contract type:										
Product contracts	\$2,579.8	\$2,072.3	\$2,351.7	\$2,529.4	\$1,220.0	\$1,452.5	\$1,743.1	\$1,861.8	\$7,894.6	\$7,916.0
Other contracts	315.9	291.5	8.3	9.6	23.7	22.5	193.4	105.5	541.3	429.1
Consolidated net sales	<u>\$2,895.7</u>	<u>\$2,363.8</u>	<u>\$2,360.0</u>	<u>\$2,539.0</u>	<u>\$1,243.7</u>	<u>\$1,475.0</u>	<u>\$1,936.5</u>	<u>\$1,967.3</u>	<u>\$8,435.9</u>	<u>\$8,345.1</u>

The other contracts line above primarily includes service contracts, project contracts with multiple performance obligations and other contracts with revenue recognized over time. Further information on net sales by reportable segment and geographic region is included in Note 17.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Allowance for Doubtful Accounts

	Year Ended December 31,		
	2020	2019	2018
Allowance for doubtful accounts, beginning of period	\$ 35.4	\$ 17.4	\$ 14.0
Charged to costs and expenses	5.0	10.6	6.0
Write-offs	(3.2)	(1.7)	(1.2)
Recoveries	—	—	—
Foreign exchange and other	3.1	9.1	(1.4)
Allowance for doubtful accounts, end of period	<u>\$ 40.3</u>	<u>\$ 35.4</u>	<u>\$ 17.4</u>

Customer Contract Balances

The following table provides the balance sheet location and amounts of contract assets and liabilities from contracts with customers.

	Balance Sheet Location	December 31,	
		2020	2019
Unbilled accounts receivable	Accounts receivable, less allowance for doubtful accounts	\$ 21.9	\$ 28.6
Deferred revenue	Accrued and other liabilities and Other noncurrent liabilities	143.2	122.2

There were no material changes to contract asset balances for the year ended December 31, 2020 as a result of changes in estimates or impairments. As of December 31, 2020, the aggregate amount of the transaction price allocated to performance obligations that are unsatisfied and that have a duration of one year or less was \$90.0 million, with the remaining \$53.2 million having a duration greater than one year.

Contract Liabilities

The following table presents the changes in deferred revenue:

	Year Ended December 31,	
	2020	2019
Balance at beginning of period	\$ 122.2	\$ 7.6
Fair value of deferred revenue acquired in ARRIS acquisition	—	90.1
Deferral of revenue	186.7	124.8
Recognition of unearned revenue	(165.7)	(100.3)
Balance at end of period	<u>\$ 143.2</u>	<u>\$ 122.2</u>

6. LEASES

The Company has operating type leases for real estate, equipment and vehicles both in the U.S. and internationally. As of December 31, 2020, the Company had no finance type leases. Operating lease expense was \$105.2 million and \$88.3 million for the years ended December 31, 2020 and 2019, respectively, inclusive of period cost for short-term, cancellable and variable leases, not included in lease liabilities, of \$31.3 million and \$26.7 million for the years ended December 31, 2020 and 2019, respectively.

The Company occasionally subleases all or a portion of certain unutilized real estate facilities. As of December 31, 2020, the Company's sublease arrangements were classified as operating type leases and the income amounts were not material for the years ended December 31, 2020 and 2019, respectively.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Supplemental cash flow information related to operating leases:

	Year Ended December 31,	
	2020	2019
Operating cash paid to settle lease liabilities	\$ 74.6	\$ 68.4
Right of use asset additions in exchange for lease liabilities	21.9	33.7

Supplemental balance sheet information related to operating leases:

	Balance Sheet Location	December 31,	
		2020	2019
Right of use assets	Other noncurrent assets	\$ 159.3	\$ 204.9
Lease liabilities	Accrued and other liabilities	\$ 62.4	\$ 61.7
Lease liabilities	Other noncurrent liabilities	119.1	160.4
Total lease liabilities		<u>\$ 181.5</u>	<u>\$ 222.1</u>

Weighted average remaining lease term (in years)	3.9
Weighted average discount rate	7.4%

Future minimum lease payments under non-cancellable leases as of December 31, 2020 are as follows:

	Operating Leases	
2021	\$	73.5
2022		48.2
2023		36.9
2024		25.5
2025		13.1
Thereafter		23.7
Total minimum lease payments	\$	220.9
Less: imputed interest		(39.4)
Total	\$	<u>181.5</u>

7. SUPPLEMENTAL FINANCIAL STATEMENT INFORMATION

Inventories

	December 31,	
	2020	2019
Raw materials	\$ 280.2	\$ 240.1
Work in process	140.6	121.6
Finished goods	668.1	614.2
	<u>\$ 1,088.9</u>	<u>\$ 975.9</u>

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Property, Plant and Equipment

	December 31,	
	2020	2019
Land and land improvements	\$ 60.5	\$ 57.4
Buildings and improvements	339.8	333.3
Machinery and equipment	916.7	849.9
Construction in progress	73.2	37.0
	1,390.2	1,277.6
Accumulated depreciation	(705.7)	(553.8)
	<u>\$ 684.5</u>	<u>\$ 723.8</u>

Depreciation expense was \$158.3 million, \$143.7 million and \$75.6 million during the years ended December 31, 2020, 2019 and 2018, respectively. No interest was capitalized during the years ended December 31, 2020, 2019 or 2018.

Accrued and Other Liabilities

	December 31,	
	2020	2019
Compensation and employee benefit liabilities	\$ 277.9	\$ 187.3
Operating lease liabilities	62.4	61.7
Accrued interest	120.2	97.8
Deferred revenue	90.0	82.6
Accrued royalties	21.9	63.9
Product warranty accrual	45.8	42.8
Restructuring reserve	22.0	24.0
Income taxes payable	13.0	15.8
Value-added taxes payable	29.3	27.3
Contract manufacturing liability	25.5	25.4
Patent claims and litigation settlements	25.7	70.1
Other	176.9	163.3
	<u>\$ 910.6</u>	<u>\$ 862.0</u>

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Accumulated Other Comprehensive Loss

The following table presents changes in accumulated other comprehensive loss (AOCL), net of tax:

	Year Ended December 31,	
	2020	2019
<u>Foreign currency translation</u>		
Balance at beginning of period	\$ (162.7)	\$ (140.5)
Other comprehensive income (loss)	82.2	(23.9)
Amounts reclassified from AOCL	—	1.7
Balance at end of period	<u>\$ (80.5)</u>	<u>\$ (162.7)</u>
<u>Hedging instruments</u>		
Balance at beginning of period	\$ (8.9)	\$ (1.4)
Other comprehensive loss	(30.1)	(7.5)
Balance at end of period	<u>\$ (39.0)</u>	<u>\$ (8.9)</u>
<u>Defined benefit plan activity</u>		
Balance at beginning of period	\$ (25.4)	\$ (17.3)
Other comprehensive loss	(10.9)	(8.4)
Amounts reclassified from AOCL	(0.1)	0.3
Balance at end of period	<u>\$ (36.4)</u>	<u>\$ (25.4)</u>
Net AOCL at end of period	<u>\$ (155.9)</u>	<u>\$ (197.0)</u>

Amounts reclassified from net AOCL related to foreign currency translation and defined benefit plans are recorded in other expense, net in the Consolidated Statements of Operations.

Cash Flow Information

	Year Ended December 31,		
	2020	2019	2018
Cash paid during the period for:			
Income taxes, net of refunds	\$ 94.4	\$ 120.9	\$ 112.1
Interest	520.9	465.2	231.3

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

8. FINANCING

	December 31,	
	2020	2019
7.125% senior notes due July 2028	\$ 700.0	\$ —
5.00% senior notes due March 2027	750.0	750.0
8.25% senior notes due March 2027	1,000.0	1,000.0
6.00% senior notes due June 2025	1,300.0	1,500.0
5.50% senior notes due June 2024	—	650.0
5.00% senior notes due June 2021	—	150.0
6.00% senior secured notes due March 2026	1,500.0	1,500.0
5.50% senior secured notes due March 2024	1,250.0	1,250.0
Senior secured term loan due April 2026	3,160.0	3,192.0
Senior secured revolving credit facility	—	—
Total principal amount of debt	\$ 9,660.0	\$ 9,992.0
Less: Original issue discount, net of amortization	(24.8)	(29.2)
Less: Debt issuance costs, net of amortization	(114.6)	(130.4)
Less: Current portion	(32.0)	(32.0)
Total long-term debt	<u>\$ 9,488.6</u>	<u>\$ 9,800.4</u>

Senior Notes

In July 2020, CommScope, Inc., a wholly owned subsidiary of the Company, issued \$700.0 million aggregate principal amount of 7.125% senior notes due July 2028 (the 2028 Notes). The 2028 Notes were offered in a private placement exempt from registration under the Securities Act of 1933, as amended (the Securities Act), to qualified institutional buyers pursuant to Rule 144A under the Securities Act and to certain non-U.S. persons outside of the United States in reliance on Regulation S under the Securities Act. The Company used the net proceeds from the offering of the 2028 Notes, together with cash on hand, to redeem and retire all of the outstanding 5.00% senior notes due 2021 (the 2021 Notes) and the outstanding 5.50% senior notes due 2024 (the 2024 Notes) and pay fees and expenses related to the transaction. The Company had previously redeemed \$100.0 million of the 2021 Notes in February 2020. The redemption of the 2024 Notes resulted in a charge of \$11.9 million which is reflected in other expense, net during the year ended December 31, 2020. In connection with the redemptions of the 2021 Notes and the 2024 Notes, \$5.0 million of debt issuance costs were written off and included in interest expense during the year ended December 31, 2020. During 2019, \$500.0 million aggregate principal amount of the 2021 Notes was redeemed and resulted in the write-off of \$2.1 million of debt issuance costs, which was reflected in interest expense.

In connection with issuing the 2028 Notes, the Company incurred costs of \$11.7 million during the year ended December 31, 2020 which were recorded as a reduction of the carrying amount of the debt and are being amortized over the term of the 2028 Notes.

As of December 31, 2020, the Company had outstanding two series of senior secured notes: (1) \$1.5 billion of 6.00% senior secured notes due 2026 issued by CommScope, Inc. in February 2019 (the 2026 Secured Notes) and (2) \$1.25 billion of 5.50% senior secured notes due 2024 issued by CommScope, Inc. in February 2019 (the 2024 Secured Notes and, together with the 2026 Secured Notes, the Secured Notes). In addition to the 2028 Notes, as of December 31, 2020, the Company had outstanding three series of senior notes: (1) \$ 750.0 million initial aggregate principal amount of 5.00% senior notes due March 15, 2027 issued by CommScope Technologies LLC (CommScope Technologies), a wholly owned subsidiary of the Company, in March 2017 (the 5.00% 2027 Notes); (2) \$1.3 billion aggregate principal amount of 6.00% senior notes due June 15, 2025 issued by CommScope Technologies in June 2015 (the 2025 Notes, and together with the 5.00% 2027 Notes, the CommScope Technologies Notes); (3) \$1.0 billion initial aggregate principal amount of 8.25% senior notes due March 1, 2027 issued by CommScope, Inc. in February 2019 (the 8.25% 2027 Notes and, together with the 2028 Notes, the CommScope, Inc. Notes; the Secured Notes, the CommScope Technologies Notes and the CommScope, Inc. Notes, collectively, the Senior Notes).

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The indentures governing the Senior Notes contain covenants that restrict the ability of CommScope, Inc. and its restricted subsidiaries to, among other things, incur additional debt, make certain payments, including payment of dividends (except, in the case of the CommScope, Inc. Notes and the Secured Notes, with respect to the Convertible Preferred Stock) or repurchases of equity interests of CommScope, Inc. or the applicable issuer, make loans or acquisitions or capital contributions and certain investments, incur certain liens, sell assets, merge or consolidate or liquidate other entities and enter into certain transactions with affiliates.

There are no financial maintenance covenants in the indentures governing the Senior Notes. Events of default under the indentures governing the Senior Notes include, among others, non-payment of principal or interest when due, covenant defaults, bankruptcy and insolvency events and cross acceleration to material debt.

6.00% Senior Secured Notes due 2026 and 5.50% Senior Secured Notes due 2024 (the Secured Notes)

The 2024 Secured Notes mature on March 1, 2024 and the 2026 Secured Notes mature on March 1, 2026. Interest is payable on the Secured Notes semi-annually in arrears on March 1 and September 1 of each year. The Secured Notes are guaranteed on a senior secured basis by the Company and each of CommScope, Inc.'s existing and future wholly owned domestic restricted subsidiaries that is an obligor under the senior secured credit facilities or certain other debt, subject to certain exceptions. The Secured Notes and the related guarantees are secured on a first-priority basis by security interests in all of the assets that secure indebtedness under the 2026 Term Loan (as defined below) on a first-priority basis, and on a second-priority basis in all assets that secure the Revolving Credit Facility (as defined below) on a first-priority basis and the 2026 Term Loan on a second-priority basis. The Secured Notes and the related guarantees rank senior in right of payment to all of CommScope, Inc.'s and the guarantors' subordinated indebtedness and equally in right of payment with all of CommScope, Inc.'s and the guarantors' senior indebtedness (without giving effect to collateral arrangements), including the senior secured credit facilities and the other Senior Notes. The Secured Notes and the related guarantees are effectively senior to all of CommScope, Inc.'s and the guarantors' unsecured indebtedness and debt secured by a lien junior to the liens securing the Secured Notes, in each case to the extent of the value of the collateral, and effectively equal to all of CommScope, Inc.'s and the guarantors' senior indebtedness secured on the same priority basis as the Secured Notes, including the 2026 Term Loan. The Secured Notes and the related guarantees are effectively subordinated to any of CommScope, Inc.'s or the guarantors' indebtedness that is secured by assets that do not constitute collateral for the Secured Notes and effectively subordinated to any of CommScope, Inc.'s or the guarantors' indebtedness that is secured by a senior-priority lien, including under the Revolving Credit Facility, in each case to the extent of the value of the assets securing such indebtedness. In addition, the Secured Notes and related guarantees are structurally subordinated to all existing and future liabilities (including trade payables) of CommScope, Inc.'s subsidiaries that do not guarantee the Secured Notes.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The Secured Notes may be redeemed prior to maturity under certain circumstances. Upon certain change of control events, the Secured Notes may be redeemed at the option of the holders at 101% of their face amount, plus accrued and unpaid interest. The 2024 Secured Notes may be redeemed on or after March 1, 2021 by CommScope, Inc. at the redemption prices specified in the indenture governing the Secured Notes. Prior to March 1, 2021, the 2024 Secured Notes may be redeemed by CommScope, Inc. at a redemption price equal to 100% of their principal amount, plus a make-whole premium (as specified in the indenture governing the Secured Notes), plus accrued and unpaid interest. Prior to March 1, 2021, under certain circumstances, CommScope, Inc. may also redeem up to 40% of the aggregate principal amount of the 2024 Secured Notes at a redemption price of 105.50%, plus accrued and unpaid interest, using the proceeds of certain equity offerings. At any time prior to March 1, 2021, CommScope, Inc. may redeem during each calendar year up to 10.0% of the aggregate principal amount of the 2024 Secured Notes at a redemption price equal to 103.0% of the aggregate principal amount of the 2024 Secured Notes to be redeemed, plus accrued and unpaid interest, if any, to, but not including, the date of redemption. The 2026 Secured Notes may be redeemed on or after March 1, 2022 by CommScope, Inc. at the redemption prices specified in the indenture governing the 2026 Secured Notes. Prior to March 1, 2022, the 2026 Secured Notes may be redeemed by CommScope, Inc. at a redemption price equal to 100% of their principal amount, plus a make-whole premium (as specified in the indenture governing the Secured Notes), plus accrued and unpaid interest. Prior to March 1, 2022, under certain circumstances, CommScope, Inc. may also redeem up to 40% of the aggregate principal amount of the 2026 Secured Notes at a redemption price of 106.00%, plus accrued and unpaid interest, using the proceeds of certain equity offerings. At any time prior to March 1, 2022, CommScope, Inc. may redeem during each calendar year up to 10.0% of the aggregate principal amount of the 2026 Secured Notes at a redemption price equal to 103.0% of the aggregate principal amount of the 2026 Secured Notes to be redeemed, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

7.125% Senior Notes due 2028 and 8.25% Senior Notes due 2027 (the CommScope, Inc. Notes)

The 2028 Notes mature on July 1, 2028 and the 8.25% 2027 Notes mature on March 1, 2027. Interest is payable semi-annually in arrears on the 2028 Notes on July 1 and January 1 of each year and on the 8.25% 2027 Notes on March 1 and September 1 of each year. The CommScope, Inc. Notes are guaranteed on a senior unsecured basis by each of CommScope, Inc.'s existing and future wholly owned domestic restricted subsidiaries that is an obligor under the senior secured credit facilities or certain other capital markets debt, subject to certain exceptions. The CommScope, Inc. Notes and the related guarantees rank senior in right of payment to all of CommScope, Inc.'s and the guarantors' subordinated indebtedness and equally in right of payment with all of CommScope, Inc.'s and the guarantors' senior indebtedness (without giving effect to collateral arrangements), including the senior secured credit facilities and the other Senior Notes. The CommScope, Inc. Notes and the related guarantees are effectively junior to all of CommScope, Inc.'s and the guarantors' existing and future secured indebtedness, including the Secured Notes and the senior secured credit facilities, to the extent of the value of the assets securing such secured indebtedness. In addition, the CommScope, Inc. Notes and related guarantees are structurally subordinated to all existing and future liabilities (including trade payables) of CommScope, Inc.'s subsidiaries that do not guarantee the CommScope, Inc. Notes.

The CommScope, Inc. Notes may be redeemed prior to maturity under certain circumstances. Upon certain change of control events, the CommScope, Inc. Notes may be redeemed at the option of the holders at 101% of their principal amount, plus accrued and unpaid interest. The 2028 Notes may be redeemed by CommScope, Inc. on or after July 1, 2023 at the redemption prices specified in the indenture governing the 2028 Notes. Prior to July 1, 2023, the 2028 Notes may be redeemed by CommScope, Inc. at a redemption price equal to 100% of their principal amount, plus a make-whole premium (as specified in the indenture governing the 2028 Notes), plus accrued and unpaid interest. Prior to July 1, 2023, under certain circumstances, CommScope, Inc. may also redeem up to 40% of the aggregate principal amount of the 2028 Notes at a redemption price of 107.125%, plus accrued and unpaid interest, using the proceeds of certain equity offerings. The 8.25% 2027 Notes may be redeemed by CommScope, Inc. on or after March 1, 2022 at the redemption prices specified in the indenture governing the 8.25% 2027 Notes. Prior to March 1, 2022, the 8.25% 2027 Notes may be redeemed by CommScope, Inc. at a redemption price equal to 100% of their principal amount, plus a make-whole premium (as specified in the indenture governing the 8.25% 2027 Notes), plus accrued and unpaid interest. Prior to March 1, 2022, under certain circumstances, CommScope, Inc. may also redeem up to 40% of the aggregate principal amount of the 8.25% 2027 Notes at a redemption price of 108.25%, plus accrued and unpaid interest, using the proceeds of certain equity offerings.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

5.00% Senior Notes due 2027 and 6.00% Senior Notes due 2025 (the CommScope Technologies Notes)

The 5.00% 2027 Notes mature on March 15, 2027 and the 2025 Notes mature on June 15, 2025. Interest is payable on the 5.00% 2027 Notes semi-annually in arrears on March 15 and September 15 of each year and on the 2025 Notes on June 15 and December 15 of each year.

The CommScope Technologies Notes are guaranteed on a senior unsecured basis by CommScope, Inc. and each of CommScope, Inc.'s existing and future wholly owned domestic restricted subsidiaries (other than CommScope Technologies) that is an obligor under the senior secured credit facilities or certain other capital markets debt, subject to certain exceptions. The CommScope Technologies Notes and the related guarantees rank senior in right of payment to all of CommScope Technologies' and the guarantors' subordinated indebtedness and equally in right of payment with all of CommScope Technologies' and the guarantors' senior indebtedness (without giving effect to collateral arrangements), including the senior secured credit facilities and the other Senior Notes. The CommScope Technologies Notes and the related guarantees are effectively junior to all of CommScope Technologies' and the guarantors' existing and future secured indebtedness, including the Secured Notes and the senior secured credit facilities, to the extent of the value of the assets securing such secured indebtedness. In addition, the CommScope Technologies Notes and related guarantees are structurally subordinated to all existing and future liabilities (including trade payables) of CommScope, Inc.'s subsidiaries that do not guarantee the CommScope Technologies Notes.

The CommScope Technologies Notes may be redeemed prior to maturity under certain circumstances. Upon certain change of control events, the CommScope Technologies Notes may be redeemed at the option of the holders at 101% of their principal amount, plus accrued and unpaid interest. The 5.00% 2027 Notes may be redeemed by CommScope Technologies on or after March 15, 2022 at the redemption prices specified in the indenture governing the 5.00% 2027 Notes. Prior to March 15, 2022, the 5.00% 2027 Notes may be redeemed by CommScope Technologies at a redemption price equal to 100% of the aggregate principal amount of the 5.00% 2027 Notes to be redeemed, plus a make-whole premium (as specified in the indenture governing the 5.00% 2027 Notes), plus accrued and unpaid interest. The 2025 Notes may be redeemed by CommScope Technologies at the redemption prices specified in the indenture governing the 2025 Notes.

During the year ended December 31, 2020, the Company redeemed \$200.0 million aggregate principal amount of the 2025 Notes, which resulted in charges of \$6.0 million that are reflected in other expense, net. In connection with the redemptions, \$2.6 million of debt issuance costs was written off and included in interest expense during the year ended December 31, 2020.

Senior Secured Credit Facilities

Senior Secured Term Loan due 2026

The senior secured term loan due 2026 (the 2026 Term Loan) has scheduled amortization payments of \$32.0 million per year due in equal quarterly installments, which began with the quarter ended December 31, 2019, with the balance due at maturity (April 2026). The interest rate is, at the Company's option, either (1) the base rate (which is the highest of (w) the greater of the then-current federal funds rate set by the Federal Reserve Bank of New York and the overnight federal funds rate, in each case, plus 0.5%, (x) the prime rate on such day, (y) the one-month Eurodollar rate published on such date plus 1.00% and (z) 1.00% per annum) plus an applicable margin of 2.25% or (2) one-, two-, three- or six-month LIBOR or, if available from all lenders, 12-month LIBOR or any shorter period (selected at the option of CommScope, Inc.) plus an applicable margin of 3.25%. The 2026 Term Loan is subject to a LIBOR floor of 0.00%.

Subject to certain conditions, the 2026 Term Loan may be increased or a new incremental term loan facility may be added to increase the capacity by up to the sum of the greater of \$950.0 million and 50% of Consolidated EBITDA, as defined in the credit agreement governing the 2026 Term Loan (the Credit Agreement), plus an unlimited amount as long as on a pro forma basis the Company meets certain net leverage ratios or fixed charge ratios as defined in the Credit Agreement.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

CommScope, Inc. may voluntarily prepay loans under the 2026 Term Loan, subject to minimum amounts, with prior notice but without premium or penalty. CommScope, Inc. must prepay the 2026 Term Loan with the net cash proceeds of certain asset sales, the incurrence or issuance of specified refinancing indebtedness and, commencing with the fiscal year ending in December 2020, 50% of excess cash flow (such percentage subject to reduction based on the achievement of specified Consolidated First Lien Net Leverage Ratios), in each case, subject to certain reinvestment rights and other exceptions.

CommScope, Inc.'s obligations under the 2026 Term Loan are guaranteed by the Company and each of CommScope, Inc.'s direct and indirect wholly owned U.S. subsidiaries (subject to certain permitted exceptions based on immateriality thresholds of aggregate assets and revenues of excluded U.S. subsidiaries). The 2026 Term Loan is secured by a lien on substantially all of CommScope, Inc.'s and the guarantors' current and fixed assets (subject to certain exceptions), and the 2026 Term Loan will have a first-priority lien on all fixed assets and a second-priority lien on all current assets (second in priority to the liens securing the Revolving Credit Facility), in each case, subject to other permitted liens.

The 2026 Term Loan contains customary negative covenants consistent with those applicable to the New Notes, including, but not limited to, restrictions on the ability of CommScope, Inc. and its subsidiaries to merge and consolidate with other companies, incur indebtedness, grant liens or security interests on assets, pay dividends (except with respect to the Convertible Preferred Stock) or make other restricted payments, sell or otherwise transfer assets or enter into certain transactions with affiliates.

The 2026 Term Loan provides that, upon the occurrence of certain events of default, the obligations thereunder may be accelerated. Such events of default will include payment defaults, material inaccuracies of representations and warranties, covenant defaults, cross-defaults to other material indebtedness, voluntary and involuntary bankruptcy proceedings, material money judgments, material pension-plan events, change of control and other customary events of default.

During the year ended December 31, 2020, the Company made scheduled amortization payments of \$32.0 million due in equal quarterly installments on the 2026 Term Loan. The current portion of long-term debt reflects \$32.0 million of repayments due under the 2026 Term Loan.

No portion of the 2026 Term Loan was reflected as a current portion of long-term debt as of December 31, 2020 related to the potentially required excess cash flow payment because no such payment is expected to be required.

During 2019, the Company paid off the then existing senior secured term loan due 2022 (the 2022 Term Loan). In connection with the repayments of the 2022 Term Loan, \$4.1 million of original issue discount and \$7.7 million of debt issuance costs were written off and included in interest expense for the year ended December 31, 2019. The Company also incurred ticking fees related to the 2026 Term Loan of \$12.3 million during the year ended December 31, 2019 that were included in interest expense.

Senior Secured Revolving Credit Facility

The Company's asset-based revolving credit facility (the Revolving Credit Facility) provides borrowing capacity of up to \$1.0 billion, subject to certain limitations, with a maturity in April 2024, available to CommScope, Inc. and its U.S. subsidiaries designated as co-borrowers (the Revolving Borrowers). The ability to draw under the Revolving Credit Facility or issue letters of credit is conditioned upon, among other things, delivery of prior written notice of a borrowing or issuance, as applicable, the ability of the borrowers to reaffirm the representations and warranties contained in the Revolving Credit Facility and the absence of any default or event of default. The Company borrowed and repaid \$250.0 million under the Revolving Credit Facility during the year ended December 31, 2020. As of December 31, 2020, the Company had no outstanding borrowings under the Revolving Credit Facility and had availability of \$735.1 million, after giving effect to borrowing base limitations and outstanding letters of credit.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Letters of credit under the Revolving Credit Facility are limited to the lesser of (x) \$250.0 million and (y) the aggregate unused amount of commitments under the Revolving Credit Facility then in effect. Subject to certain conditions, the Revolving Credit Facility may be expanded by up to \$400.0 million in additional commitments. Loans under the Revolving Credit Facility may be denominated, at the option of the Revolving Borrowers, in U.S. dollars, euros, pounds sterling or Swiss francs.

Borrowings under the Revolving Credit Facility are limited by borrowing base calculations based on the sum of specified percentages of eligible accounts receivable and eligible inventory, minus the amount of any applicable reserves. Borrowings will bear interest at a floating rate, which can be either an adjusted Eurodollar rate plus an applicable margin of 1.25% to 1.50% or, at the option of the Revolving Borrowers, a base rate plus an applicable margin of 0.25% to 0.50%.

The obligations of the Revolving Borrowers under the Revolving Credit Facility are guaranteed by the Company, CommScope, Inc. and each of CommScope, Inc.'s direct and indirect wholly owned U.S. subsidiaries (subject to certain permitted exceptions based on immateriality thresholds of aggregate assets and revenues of excluded U.S. subsidiaries). The Revolving Credit Facility is secured by a lien on substantially all of the Revolving Borrowers' and the guarantors' current and fixed assets (subject to certain exceptions). The Revolving Credit Facility has a first-priority lien on all current assets and a second-priority lien on all fixed assets (second in priority to the liens securing the 2024 Secured Notes, the 2026 Secured Notes and the 2026 Term Loan), in each case, subject to other permitted liens.

The following fees are applicable under the Revolving Credit Facility: (i) an unused line fee of (x) 0.25% per annum of the unused portion of the Revolving Credit Facility when the average unused portion of the facility is less than 50% of the aggregate commitments under the Revolving Credit Facility or (y) 0.375% per annum of the unused portion of the Revolving Credit Facility when the average unused portion of the facility is equal to or greater than 50% of the aggregate commitments under the Revolving Credit Facility; (ii) a letter of credit participation fee on the aggregate stated amount of each letter of credit equal to the applicable margin for adjusted Eurodollar rate loans, as applicable; (iii) a letter of credit fronting fee of 0.125% per annum, multiplied by the average aggregate daily maximum amount available to be drawn under all applicable letters of credit issued by such letter of credit issuer; and (iv) certain other customary fees and expenses of the lenders and agents thereunder.

The Revolving Borrowers will be required to make prepayments under the Revolving Credit Facility at any time when, and to the extent that, the aggregate amount of the outstanding loans and letters of credit under the Revolving Credit Facility exceeds the lesser of the aggregate amount of commitments in respect of the Revolving Credit Facility and the borrowing base.

The Revolving Credit Facility contains customary covenants, including, but not limited to, restrictions on the ability of CommScope, Inc. and its subsidiaries to merge and consolidate with other companies, incur indebtedness, grant liens or security interests on assets, make acquisitions, loans, advances or investments, pay dividends (except with respect to the Convertible Preferred Stock), sell or otherwise transfer assets, optionally prepay or modify terms of any junior indebtedness, enter into certain transactions with affiliates or change lines of business. The Revolving Credit Facility contains a Covenant Fixed Charge Coverage Ratio (as defined in the credit agreement governing the Revolving Credit Facility) of 1.00 to 1.00. The credit agreement provides that the Covenant Fixed Charge Coverage Ratio must be tested and must exceed the level set forth above only; in the event that excess availability under the Revolving Credit Facility is less than the greater of \$80 million and 10% of the borrowing base as of the end of the most recent fiscal quarter. As of December 31, 2020, the Company's excess availability and Covenant Fixed Charge Coverage Ratio were in excess of the Revolving Credit Facility's requirements.

The Revolving Credit Facility provides that, upon the occurrence of certain events of default, the obligations thereunder may be accelerated and the lending commitments terminated. Such events of default include payment defaults, material inaccuracies of representations and warranties, covenant defaults, cross-defaults to other material indebtedness, voluntary and involuntary bankruptcy proceedings, material money judgments, material pension-plan events, certain change of control events and other customary events of default.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Other Matters

The following table summarizes scheduled maturities of long-term debt as of December 31, 2020:

	2021	2022	2023	2024	2025	Thereafter
Scheduled maturities of long-term debt	\$ 32.0	\$ 32.0	\$ 32.0	\$ 1,282.0	\$ 1,332.0	\$ 6,950.0

The Company's non-guarantor subsidiaries held \$2,466 million, or 18%, of total assets and \$956 million, or 8%, of total liabilities as of December 31, 2020 and accounted for \$2,430 million, or 29%, of net sales for the year ended December 31, 2020. As of December 31, 2019, the non-guarantor subsidiaries held \$3,773 million, or 26%, of total assets and \$714 million, or 6%, of total liabilities. For the year ended December 31, 2019, the non-guarantor subsidiaries accounted for \$3,044 million, or 37%, of net sales. All amounts presented exclude intercompany balances.

The Company is dependent upon the earnings and cash flow of its subsidiaries to make certain payments, including debt and interest payments. Certain subsidiaries may have limitations or restrictions on transferring funds to other subsidiaries that may be necessary to meet those requirements.

The weighted average effective interest rate on outstanding borrowings, including the impact of the interest rate swap, and the amortization of debt issuance costs and original issue discount, was 5.86% at December 31, 2020 and 6.13% at December 31, 2019.

9. DERIVATIVES AND HEDGING ACTIVITIES

Derivatives Not Designated As Hedging Instruments

The Company uses forward contracts to hedge a portion of its balance sheet foreign exchange re-measurement risk and to hedge certain planned foreign currency expenditures. As of December 31, 2020, the Company had foreign exchange contracts outstanding with maturities of up to six months and aggregate notional values of \$515.5 million (based on exchange rates as of December 31, 2020). Unrealized gains and losses resulting from these contracts are recognized in other expense, net and partially offset corresponding foreign exchange gains and losses on the balances and expenditures being hedged.

The following table presents the balance sheet location and fair value of the Company's derivatives not designated as hedging instruments:

Contract Type	Location of Asset (Liability)	December 31,	
		2020	2019
Foreign currency contracts	Prepaid expenses and other current assets	\$ 11.7	\$ 4.9
Foreign currency contracts	Accrued and other liabilities	(3.3)	(5.9)
Total derivatives not designated as hedging instruments		<u>\$ 8.4</u>	<u>\$ (1.0)</u>

The pretax impact of the foreign currency forward contracts, both matured and outstanding, on the Consolidated Statements of Operations is as follows:

Location of Gain (Loss)	Year Ended December 31,		
	2020	2019	2018
Other expense, net	\$ 24.9	\$ (13.6)	\$ (17.8)

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Derivative Instruments Designated As Net Investment Hedges

The Company has a hedging strategy to designate certain foreign currency contracts as net investment hedges to mitigate a portion of the foreign currency risk on the euro net investment in a foreign subsidiary. As of December 31, 2020, the Company held designated foreign currency contracts with outstanding maturities of up to six months and an aggregate notional value of \$300 million. As of December 31, 2020 and 2019, there was no ineffectiveness on the instruments designated as net investment hedges.

The following table presents the balance sheet location and fair value of the derivative instruments designated as net investment hedges:

Contract Type	Location of Asset (Liability)	December 31,	
		2020	2019
Foreign currency contracts	Other noncurrent assets	\$ —	\$ 5.8
Foreign currency contracts	Accrued and other liabilities	(21.1)	—
Total derivatives designated as net investment hedging instruments		<u>\$ (21.1)</u>	<u>\$ 5.8</u>

The after tax impact of the forward contracts designated as net investment hedging instruments, both matured and outstanding, on the Consolidated Statements of Operations is as follows:

Location of Gain (Loss)	Year Ended December 31,		
	2020	2019	2018
Other comprehensive income (loss), net of tax	\$ (19.9)	\$ 5.6	\$ 3.5

Derivative Instruments Designated As Cash Flow Hedges of Interest Rate Risk

The Company has a hedging strategy to mitigate a portion of the exposure to changes in cash flows resulting from variable interest rates on the senior secured term loan due 2026. The total notional amount of the interest rate swap derivatives as of December 31, 2020 was \$600 million with outstanding maturities up to thirty-nine months. As of December 31, 2020 and 2019, there was no ineffectiveness on the instruments designated as cash flow hedges. The Company did not have derivative instruments designated as cash flow hedges of interest rate during the year ended December 31, 2018.

The following table presents the balance sheet location and fair value of the derivative instruments designated as cash flow hedges of interest rate risk:

Contract Type	Location of Asset (Liability)	December 31,	
		2020	2019
Interest rate swap contracts	Other noncurrent liabilities	\$ (29.9)	\$ (16.3)

The impact of the effective portion of the interest rate swap contracts designated as cash flow hedging instruments on the Consolidated Statements of Comprehensive Income (Loss) is as follows:

Location of Gain (Loss)	Year Ended December 31,	
	2020	2019
Other comprehensive income (loss), net of tax	\$ (10.2)	\$ (12.2)

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

10. FAIR VALUE MEASUREMENTS

The Company's financial instruments consist primarily of cash and cash equivalents, trade receivables, trade payables, debt instruments, interest rate derivatives and foreign currency contracts. For cash and cash equivalents, trade receivables and trade payables, the carrying amounts of these financial instruments as of December 31, 2020 and December 31, 2019 were considered representative of their fair values due to their short terms to maturity. The fair values of the Company's debt instruments, interest rate derivatives and foreign currency contracts were based on indicative quotes.

Fair value measurements using quoted prices in active markets for identical assets and liabilities fall within Level 1 of the fair value hierarchy, measurements using significant other observable inputs fall within Level 2, and measurements using significant unobservable inputs fall within Level 3.

The carrying amounts, estimated fair values and valuation input levels of the Company's debt instruments, interest rate derivatives and foreign currency contracts as of December 31, 2020 and December 31, 2019, are as follows:

	December 31, 2020		December 31, 2019		Valuation Inputs
	Carrying Amount	Fair Value	Carrying Amount	Fair Value	
Assets:					
Foreign currency contracts	\$ 11.7	\$ 11.7	\$ 10.7	\$ 10.7	Level 2
Liabilities:					
7.125% senior notes due 2028	\$ 700.0	\$ 743.8	\$ —	\$ —	Level 2
5.00% senior notes due 2027	750.0	741.5	750.0	696.4	Level 2
8.25% senior notes due 2027	1,000.0	1,068.5	1,000.0	1,052.5	Level 2
6.00% senior notes due 2025	1,300.0	1,329.3	1,500.0	1,501.7	Level 2
5.50% senior notes due 2024	—	—	650.0	656.0	Level 2
5.00% senior notes due 2021	—	—	150.0	149.9	Level 2
6.00% senior secured notes due 2026	1,500.0	1,576.8	1,500.0	1,595.6	Level 2
5.50% senior secured notes due 2024	1,250.0	1,285.9	1,250.0	1,302.1	Level 2
Senior secured term loan due 2026	3,160.0	3,156.1	3,192.0	3,219.9	Level 2
Senior secured revolving credit facility	—	—	—	—	Level 2
Foreign currency contracts	24.4	24.4	5.9	5.9	Level 2
Interest rate swap contracts	29.9	29.9	16.3	16.3	Level 2

Non-Recurring Fair Value Measurements

During the second quarter of 2020, the Company recorded a pretax goodwill impairment charge of \$206.7 million related to the Home Networks reporting unit in the Home segment (see Note 4). The fair value of the reporting unit was determined as of May 31, 2020 using a DCF model. Under the DCF method, the fair value of a reporting unit is based on the present value of estimated future cash flows. The inputs to the DCF model were Level 3 valuation inputs.

During the fourth quarter of 2019, the Company recorded a pretax goodwill impairment charge of \$376.1 million related to the Broadband, Home and VCN segments (see Note 4). The determination of the impairment charge was based on Level 3 valuation inputs.

These fair value estimates are based on pertinent information available to management as of the valuation date. Although management is not aware of any factors that would significantly affect these fair value estimates, such amounts have not been comprehensively revalued for purposes of these financial statements since those dates, and current estimates of fair value may differ significantly from the amounts presented.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

11. RESTRUCTURING COSTS

The Company incurs costs associated with restructuring initiatives intended to improve overall operating performance and profitability. The costs related to restructuring actions are generally cash-based and primarily consist of employee-related costs, which include severance and other one-time termination benefits.

In addition to the employee-related costs, the Company records other costs associated with restructuring actions such as the (gain) loss on the sale of facilities and impairment costs arising from unutilized real estate or equipment. The Company attempts to sell or lease this unutilized space but additional impairment charges may be incurred related to these or other excess assets.

The Company's net pretax restructuring charges, by segment, were as follows:

	Year Ended December 31,		
	2020	2019	2018
Broadband	\$ 17.8	\$ 36.9	\$ 11.7
Home	30.0	23.2	—
OWN	15.7	6.9	17.1
VCN	24.9	20.7	15.2
Total	\$ 88.4	\$ 87.7	\$ 44.0

Restructuring reserves were included in the Company's Consolidated Balance Sheets as follows:

	December 31,	
	2020	2019
Accrued and other liabilities	\$ 22.0	\$ 24.0
Other noncurrent liabilities	4.0	4.4
Total liability	\$ 26.0	\$ 28.4

ARRIS Integration Restructuring Actions

In anticipation of and following the Acquisition, the Company initiated a series of restructuring actions, which are currently ongoing, to integrate and streamline operations and achieve cost synergies. The activity within the liability established for the ARRIS integration restructuring actions was as follows:

	Employee- Related Costs	Other	Total
Balance at December 31, 2018	\$ —	\$ —	\$ —
Obligation assumed in ARRIS acquisition	2.3	—	2.3
Additional expense	81.8	4.3	86.1
Cash paid	(60.9)	(1.0)	(61.9)
Non-cash items	(0.1)	(1.3)	(1.4)
Balance at December 31, 2019	23.1	2.0	25.1
Additional expense	78.3	10.1	88.4
Cash (paid) received	(77.2)	3.0	(74.2)
Non-cash items	0.2	(14.3)	(14.1)
Balance at December 31, 2020	\$ 24.4	\$ 0.8	\$ 25.2

The ARRIS integration actions include headcount reductions in manufacturing, sales, engineering, marketing and administrative functions. The Company expects to make cash payments of \$21.4 million during 2021 and additional cash payments of \$3.8 million in 2022 to settle the announced ARRIS integration initiatives.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The Company continues to implement certain facility consolidation actions as part of its ARRIS integration plans. During the year ended December 31, 2020, the Company completed the sale of its facility in Forest, Virginia and recorded net proceeds of \$4.8 million resulting in a gain on the sale of the facility of \$2.1 million, which is included in restructuring costs, net on the Consolidated Statements of Operations. In addition, during the year ended December 31, 2020, the Company recorded \$8.8 million of impairment of operating lease right of use assets related to ceasing use of certain leased facilities and \$2.8 million of fixed asset impairments as part of restructuring activities, which are both included in restructuring costs, net on the Consolidated Statements of Operations.

Additional restructuring actions related to the ARRIS integration are expected to be identified and the resulting charges and cash requirements are expected to be material.

BNS Integration Restructuring Actions

Following the acquisition of Broadband Network Solutions (BNS) business in 2015, the Company initiated a series of restructuring actions to integrate and streamline operations and achieve cost synergies. The BNS integration actions include the announced closures or reduction in activities at various U.S. and international facilities as well as headcount reductions in sales, marketing and administrative functions. The Company has recognized restructuring charges of \$153.0 million since the BNS acquisition for integration actions. No additional restructuring actions are expected in connection with the BNS integration initiatives. The Company has accrued \$0.8 million for these BNS integration restructuring actions as of December 31, 2020. The Company paid \$2.5 million during the year ended December 31, 2020 and expects to make cash payments of \$0.8 million between 2021 and 2022.

12. EMPLOYEE BENEFIT PLANS

Defined Contribution Plans

The Company and certain of its subsidiaries have defined contribution retirement savings plans, the most significant of which is a 401(k) plan in the U.S. These plans allow employees meeting certain requirements to contribute a portion of their compensation on a pretax and/or after-tax basis in accordance with guidelines established by the plans and the Internal Revenue Service or other tax authorities. The Company matches a percentage of the employee contributions up to certain limits. During the years ended December 31, 2020, 2019 and 2018, the Company made contributions to defined contribution retirement savings plans of \$56.6 million, \$41.8 million and \$24.0 million, respectively.

The Company also maintains noncontributory and contributory deferred compensation plans. During the years ended December 31, 2020, 2019 and 2018, the Company recognized pretax costs of \$2.6 million, \$3.5 million and \$0.7 million, respectively, related to these plans. The liability related to these plans was \$43.2 million and \$43.8 million as of December 31, 2020 and 2019, respectively.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Pension Plans

The Company sponsors defined benefit pension plans covering certain active and former domestic and foreign employees. Included in the defined benefit pension plans are both funded and unfunded plans. The following table summarizes information for the defined benefit pension plans:

	December 31,			
	U.S. Plans		Non-U.S. Plans	
	2020	2019	2020	2019
Change in benefit obligation:				
Benefit obligation, beginning	\$ 12.8	\$ 2.2	\$ 251.5	\$ 208.8
Obligation assumed in ARRIS acquisition	—	10.0	—	12.6
Service cost	—	—	4.3	4.0
Interest cost	0.3	0.3	4.0	5.2
Actuarial loss	1.1	0.9	29.1	27.5
Benefits paid	(0.7)	(0.6)	(5.3)	(4.6)
Settlements	—	—	(9.2)	(6.4)
Foreign exchange and other	—	—	36.1	4.4
Benefit obligation, ending	<u>\$ 13.5</u>	<u>\$ 12.8</u>	<u>\$ 310.5</u>	<u>\$ 251.5</u>
Change in plan assets:				
Fair value of plan assets, beginning	\$ —	\$ —	\$ 230.8	\$ 203.4
Assets assumed in ARRIS acquisition	—	—	—	4.2
Employer and plan participant contributions	0.7	0.6	6.8	4.9
Return on plan assets	—	—	23.2	25.0
Benefits paid	(0.7)	(0.6)	(5.3)	(4.6)
Settlements	—	—	(9.2)	(6.4)
Foreign exchange and other	—	—	32.8	4.3
Fair value of plan assets, ending	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 279.1</u>	<u>\$ 230.8</u>
Funded status, net liability	<u>\$ 13.5</u>	<u>\$ 12.8</u>	<u>\$ 31.4</u>	<u>\$ 20.7</u>

The following table presents the balance sheet location of the Company's pension liabilities and assets:

	December 31,			
	U.S. Plans		Non-U.S. Plans	
	2020	2019	2020	2019
Accrued and other liabilities	\$ (0.8)	\$ (0.8)	\$ (0.5)	\$ (0.5)
Other noncurrent liabilities	(12.7)	(12.0)	(34.4)	(23.2)
Other noncurrent assets	—	—	3.5	3.0

The accumulated benefit obligation for the Company's U.S. defined benefit pension plans was \$13.5 million and \$12.8 million as of December 31, 2020 and 2019, respectively, and the accumulated benefit obligation for the Company's non-U.S. defined benefit pension plans was \$261.8 million and \$211.8 million as of December 31, 2020 and 2019, respectively.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The following table summarizes information for the Company's pension plans with an accumulated benefit obligation in excess of plan assets:

	December 31,			
	U.S. Plans		Non-U.S. Plans	
	2020	2019	2020	2019
Projected benefit obligation	\$ 13.5	\$ 12.8	\$ 51.5	\$ 30.9
Accumulated benefit obligation	13.5	12.8	48.5	26.1
Fair value of plan assets	—	—	26.1	8.5

The following table summarizes pretax amounts included in accumulated other comprehensive loss:

	December 31,			
	U.S. Plans		Non-U.S. Plans	
	2020	2019	2020	2019
Unrecognized net actuarial loss	\$ (2.3)	\$ (1.3)	\$ (43.4)	\$ (31.5)
Unrecognized prior service cost	—	—	(0.5)	(0.7)
Total	<u>\$ (2.3)</u>	<u>\$ (1.3)</u>	<u>\$ (43.9)</u>	<u>\$ (32.2)</u>

Actuarial gains and losses are amortized using a corridor approach. The corridor is equal to 10% of the greater of the benefit obligation and the fair value of the assets. Gains and losses in excess of the corridor are generally amortized over the average remaining life of the plan participants. Pretax amounts for net periodic benefit cost and other amounts included in other comprehensive income (loss) for the defined benefit pension plans consisted of the following components:

	Year Ended December 31,					
	U.S. Plans			Non-U.S. Plans		
	2020	2019	2018	2020	2019	2018
Service cost	\$ —	\$ —	\$ —	\$ 4.3	\$ 4.0	\$ 4.1
Interest cost	0.3	0.3	4.2	4.0	5.2	5.2
Recognized actuarial loss	0.1	—	0.4	1.3	0.7	1.3
Expected return on plan assets	—	—	(5.1)	(7.0)	(6.8)	(7.7)
Settlement loss	—	—	34.5	1.5	0.9	—
Net periodic benefit cost	<u>0.4</u>	<u>0.3</u>	<u>34.0</u>	<u>4.1</u>	<u>4.0</u>	<u>2.9</u>
Changes in plan assets and benefit obligations included in other comprehensive income (loss):						
Change in unrecognized net actuarial loss (gain)	1.0	0.9	8.7	13.4	9.6	(5.6)
Change in unrecognized prior service cost	—	—	—	(0.2)	—	0.3
Settlement	—	—	(34.5)	(1.5)	(0.9)	—
Total included in other comprehensive income (loss)	<u>1.0</u>	<u>0.9</u>	<u>(25.8)</u>	<u>11.7</u>	<u>8.7</u>	<u>(5.3)</u>
Total recognized in net periodic benefit cost and included in other comprehensive income (loss)	<u>\$ 1.4</u>	<u>\$ 1.2</u>	<u>\$ 8.2</u>	<u>\$ 15.8</u>	<u>\$ 12.7</u>	<u>\$ (2.4)</u>

The Company reports the service cost component of net periodic benefit cost in the same line item as other compensation costs arising from the services rendered by the employee and records the other components of net periodic benefit cost in other expense, net.

The Company terminated a significant U.S. defined benefit pension plan in the fourth quarter of 2018 through the purchase of annuities. Upon termination, the Company recognized a pretax charge in other expense, net, of \$34.5 million in 2018 primarily related to unrecognized net actuarial losses previously recorded in accumulated other comprehensive loss.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Assumptions

Significant weighted average assumptions used in determining benefit obligations and net periodic benefit cost are as follows:

	U.S. Plans			Non-U.S. Plans		
	2020	2019	2018	2020	2019	2018
Benefit obligations:						
Discount rate	2.07 %	2.95 %	3.70 %	1.02 %	1.65 %	2.50 %
Rate of compensation increase	— %	— %	— %	3.59 %	3.74 %	3.92 %
Net periodic benefit cost:						
Discount rate	2.95 %	3.70 %	3.50 %	1.65 %	2.50 %	2.23 %
Rate of return on plan assets	— %	— %	— %	2.33 %	3.03 %	3.41 %
Rate of compensation increase	— %	— %	— %	3.74 %	3.92 %	3.92 %

The Company considered the available yields on high-quality fixed-income investments with maturities corresponding to the Company's expected benefit obligations to determine the discount rates at each measurement date.

Plan Assets

In developing the expected rate of return on plan assets, the Company considered the expected long-term rate of return on individual asset classes. Expected return on plan assets is based on the market value of the assets. A portion of the non-U.S. pension assets are managed by independent investment advisors with an objective of transitioning to a portfolio of fixed income and absolute return investments that matches the durations of the obligations as the funded status of each plan improves. The absolute return investment fund is a diversified portfolio designed to achieve long-term total returns. The remainder of the non-U.S. pension assets is invested with the objective of maximizing return.

Mutual funds classified as Level 1 are valued at net asset value, which is based on the fair value of the funds' underlying securities. Certain mutual funds are classified as Level 2 because a portion of the funds' underlying assets are valued using significant other observable inputs. Other assets are primarily composed of fixed income investments (including insurance and real estate products) and are valued based on the investment's stated rate of return, which approximates market interest rates.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The Company had no U.S. defined benefit pension plan assets as of December 31, 2020 or 2019. The estimated fair values and the valuation input levels of the Company's non-U.S. defined benefit pension plan assets are as follows:

	December 31, 2020	
	Non-U.S. Plans	
	Level 1 Fair Value	Level 2 Fair Value
Mutual funds:		
International equity	\$ 31.7	\$ 30.8
International debt	42.2	101.7
Absolute return	—	29.3
Other	13.6	29.8
Total	<u>\$ 87.5</u>	<u>\$ 191.6</u>

	December 31, 2019	
	Non-U.S. Plans	
	Level 1 Fair Value	Level 2 Fair Value
Mutual funds:		
International equity	\$ 27.7	\$ 16.4
International debt	37.7	97.5
Absolute return	—	33.8
Other	8.3	9.4
Total	<u>\$ 73.7</u>	<u>\$ 157.1</u>

Expected Cash Flows

The Company expects to contribute \$0.8 million to U.S defined benefit pension plans and \$6.7 million to non-U.S. defined benefit pension plans during 2021.

The following table summarizes projected benefit payments from pension plans through 2030, including benefits attributable to estimated future service (in millions):

	U.S. Plans	Non-U.S. Plans
2021	\$ 0.8	\$ 9.0
2022	0.8	8.1
2023	0.9	6.4
2024	0.9	10.2
2025	0.9	10.1
2026-2030	4.6	56.6

Other Postretirement Benefit Plans

The Company sponsors postretirement health care and life insurance benefit plans that provide benefits to certain former U.S. employees and certain U.S. full-time employees who retire from the Company. The health care plans contain various cost-sharing features such as participant contributions, deductibles, coinsurance and caps, with Medicare as the primary provider of health care benefits for eligible retirees. The Company amended certain of the plans to terminate benefits as of December 31, 2018 and recognized a pre-tax gain of \$9.7 million in other expense, net in 2018, primarily related to the reclassification of unrecognized prior service credits and unrecognized net actuarial gains from accumulated other comprehensive loss. The accounting for the remainder of the health care plans anticipates future cost-sharing changes that are consistent with the Company's expressed intent to maintain a consistent level of cost sharing or capped benefits with retirees. There are no plan assets associated with these post-retirement health care and life insurance benefit plans.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The benefit obligation for the remaining plans was \$4.5 million and \$3.9 million as of December 31, 2020 and 2019, respectively, primarily recorded in other noncurrent liabilities on the Consolidated Balance Sheets. The pretax gains recognized in accumulated other comprehensive loss were \$4.5 million and \$2.3 million for the years ended December 31, 2020 and 2019, respectively, mostly related to unrecognized actuarial gains. The net periodic benefit income of \$1.3 million, \$1.0 million and \$7.4 million (excluding the gain discussed above related to the termination of certain benefits) for the years ended December 31, 2020, 2019 and 2018, respectively, resulted primarily from the amortization of net actuarial gains and prior service credits.

13. INCOME TAXES

Income (loss) before income taxes includes the results from domestic and international operations as follows:

	Year Ended December 31,		
	2020	2019	2018
U.S. companies	\$ (689.7)	\$ (1,112.7)	\$ 64.0
Non-U.S. companies	35.2	38.7	106.7
Income (loss) before income taxes	<u>\$ (654.5)</u>	<u>\$ (1,074.0)</u>	<u>\$ 170.7</u>

The components of income tax expense (benefit) were as follows:

	Year Ended December 31,		
	2020	2019	2018
Current:			
Federal	\$ (0.1)	\$ 33.3	\$ 9.6
Foreign	67.3	72.3	64.7
State	6.4	10.7	5.4
Current income tax expense	<u>\$ 73.6</u>	<u>\$ 116.3</u>	<u>\$ 79.7</u>
Deferred:			
Federal	\$ (131.0)	\$ (198.2)	\$ (26.1)
Foreign	(7.1)	(30.8)	(20.5)
State	(16.6)	(31.8)	(2.6)
Deferred income tax benefit	<u>(154.7)</u>	<u>(260.8)</u>	<u>(49.2)</u>
Total income tax expense (benefit)	<u>\$ (81.1)</u>	<u>\$ (144.5)</u>	<u>\$ 30.5</u>

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(In millions, unless otherwise noted)

The reconciliation of income taxes calculated at the statutory U.S. federal income tax rate to the Company's provision for income taxes was as follows:

	<u>Year Ended December 31,</u>		
	<u>2020</u>	<u>2019</u>	<u>2018</u>
Provision (benefit) for income taxes at federal statutory rate	\$ (137.4)	\$ (225.6)	\$ 35.8
State income taxes, net of federal tax effect	(21.6)	(26.2)	7.6
Other permanent items	4.2	6.2	8.0
Equity-based compensation	16.1	3.4	(4.6)
U.S. tax reform	2.2	1.6	(7.8)
Other changes in tax laws and tax rulings	(38.2)	2.2	(0.2)
Goodwill related items	42.8	77.9	—
Base erosion and anti-abuse tax	—	13.5	—
GILTI	0.8	—	6.0
Federal tax credits	(23.4)	(23.1)	(2.3)
Change in unrecognized tax benefits	(2.6)	(6.6)	(22.2)
Withholding taxes and Subpart F income, net of foreign tax credits	23.6	20.9	4.9
Foreign earnings taxed at other than federal rate	20.9	6.0	1.1
Tax provision adjustments and revisions to prior years' returns	7.1	(3.4)	(5.5)
Change in valuation allowances	24.4	8.7	9.7
Total provision (benefit) for income taxes	<u>\$ (81.1)</u>	<u>\$ (144.5)</u>	<u>\$ 30.5</u>

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The components of deferred income tax assets and liabilities and the classification of deferred tax balances on the balance sheet were as follows:

	December 31,	
	2020	2019
Deferred tax assets:		
Accounts receivable, inventory and warranty reserves	\$ 114.3	\$ 130.2
Employee benefits	59.9	55.8
Foreign net operating loss and tax credit carryforwards	512.8	523.4
Federal net operating loss and tax credit carryforwards	159.5	152.0
State net operating loss and tax credit carryforwards	120.0	121.0
Unrecognized tax benefits	42.7	42.1
Interest limitation	9.3	43.3
Capitalized research and development costs	320.2	230.1
Other	68.3	72.2
Total deferred tax assets	1,407.0	1,370.1
Valuation allowance	(583.9)	(596.6)
Total deferred tax assets, net of valuation allowance	823.1	773.5
Deferred tax liabilities:		
Intangible assets	(690.7)	(815.7)
Property, plant and equipment	(34.6)	(43.8)
Undistributed foreign earnings	(14.7)	(22.6)
Other	(1.2)	(3.4)
Total deferred tax liabilities	(741.2)	(885.5)
Net deferred tax asset (liability)	\$ 81.9	\$ (112.0)
Deferred taxes recognized on the balance sheet:		
Noncurrent deferred tax asset (included with other noncurrent assets)	\$ 288.1	\$ 103.1
Noncurrent deferred tax liability	(206.2)	(215.1)
Net deferred tax asset (liability)	\$ 81.9	\$ (112.0)

The deferred tax asset for foreign net operating loss and tax credit carryforwards as of December 31, 2020 includes foreign net operating loss carryforwards (net of federal tax effects) of \$499.6 million, which will begin to expire in 2021, and foreign tax credit carryforwards (net of federal tax effects) of \$13.2 million, which begin to expire in 2023. Certain of these foreign net operating loss carryforwards are subject to local restrictions limiting their utilization. Valuation allowances of \$480.9 million have been established related to these foreign deferred tax assets.

The deferred tax asset for federal net operating loss and tax credit carryforwards as of December 31, 2020 relates to \$7.5 million of net operating losses carryforwards, which begin to expire in 2028, \$105.8 million of research and development credit carryforwards, which begin to expire in 2024 and \$46.2 million of U.S. foreign tax credit carryforwards, which begin to expire in 2023. A valuation allowance of \$15.2 million has been established against these deferred tax assets.

The deferred tax asset for state net operating loss and tax credit carryforwards as of December 31, 2020 includes state net operating loss carryforwards (net of federal tax impact) of \$60.2 million, which begin to expire in 2022, and state tax credit carryforwards (net of federal tax impact) of \$59.8 million, which begin to expire in 2021. A valuation allowance of \$82.0 million has been established against these and other state income tax related deferred tax assets.

In addition to the valuation allowances detailed above, the Company has also established a valuation allowance of \$5.8 million against other deferred tax assets.

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Notes to Consolidated Financial Statements-(Continued)
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Under current U.S. tax regulations, in general, repatriation of foreign earnings to the U.S. can be completed with no incremental U.S. tax. However, repatriation of foreign earnings could subject the Company to U.S. state and non-U.S. jurisdictional taxes (including withholding taxes) on distributions. As of December 31, 2020, the Company has a deferred tax liability of \$14.7 million for the estimated foreign and state tax costs associated with the expected repatriation of the Company's undistributed foreign earnings. The unrecorded deferred tax liability for foreign and state tax costs associated with earnings considered permanently reinvested is not material as of December 31, 2020.

The following table reflects a reconciliation of the beginning and end of period amounts of gross unrecognized tax benefits, excluding interest and penalties:

	Year Ended December 31,		
	2020	2019	2018
Balance at beginning of period	\$ 191.9	\$ 20.1	\$ 46.6
Increase related to prior periods	2.5	12.3	4.0
Decrease related to prior periods	(4.5)	(1.2)	(0.7)
Increase related to current periods	5.0	8.5	—
Decrease related to settlements with taxing authorities	(0.9)	(1.9)	(3.9)
Decrease related to lapse in statutes of limitations	(2.6)	(15.0)	(25.9)
Increase (decrease) related to the Acquisition	(0.9)	169.1	—
Balance at end of period	<u>\$ 190.5</u>	<u>\$ 191.9</u>	<u>\$ 20.1</u>

The Company's liability for unrecognized tax benefits that, if recognized, would favorably affect the effective tax rate in future periods was \$145.7 million as of December 31, 2020. The Company operates in numerous jurisdictions worldwide and is subject to routine tax audits on a regular basis. The determination of the Company's unrecognized tax benefits involves significant management judgment regarding interpretation of relevant facts and tax laws in each of these jurisdictions.

Unrecognized tax benefits are reviewed and evaluated on an ongoing basis and may be adjusted for changing facts and circumstances including the lapse of applicable statutes of limitation and closure of tax examinations. Although the timing and outcome of such events are difficult to predict, the Company estimates that the balance of unrecognized tax benefits, excluding the impact of accrued interest and penalties, may be reduced by up to \$8.5 million within the next twelve months.

The Company provides for interest and penalties related to unrecognized tax benefits as income tax expense. As of December 31, 2020 and 2019, the Company had accrued \$9.2 million and \$10.5 million, respectively, for interest and penalties. During the years ended December 31, 2020, 2019 and 2018 the net expense (benefit) for interest and penalties recognized through income tax expense (benefit) was \$(1.3) million, \$2.1 million and \$(3.8) million, respectively.

The Company files federal, state and local tax returns with statutes of limitation generally ranging from 3 to 4 years. The Company is generally no longer subject to federal tax examinations for years prior to 2017 or state and local tax examinations for years prior to 2016. Tax returns filed by the Company's significant foreign subsidiaries are generally subject to statutes of limitations of 3 to 7 years and are generally no longer subject to examination for years prior to 2015. In many jurisdictions, tax authorities retain the ability to review prior years' tax returns and to adjust any net operating loss or tax credit carryforwards from these years that are available to be utilized in subsequent periods. During 2020, the Company recognized \$3.5 million related to the lapse of applicable statutes of limitations and the conclusion of various domestic and foreign examinations.

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Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The following table presents income tax expense (benefit) related to amounts presented in the other comprehensive income (loss):

	Year Ended December 31,		
	2020	2019	2018
Foreign currency translation	\$ 1.4	\$ (0.9)	\$ (1.9)
Defined benefit plans	(11.1)	(8.4)	4.0
Total	<u>\$ (9.7)</u>	<u>\$ (9.3)</u>	<u>\$ 2.1</u>

14. SERIES A CONVERTIBLE PREFERRED STOCK

On April 4, 2019, the Company issued and sold 1,000,000 shares of the Convertible Preferred Stock for \$1.0 billion, or \$1,000 per share, pursuant to an Investment Agreement between the Company and The Carlyle Group (Carlyle), dated November 8, 2018 (the Investment Agreement). In connection with the issuance of the Convertible Preferred Stock, the Company incurred direct and incremental expenses of \$3.0 million, including financial advisory fees, closing costs, legal expenses and other offering-related expenses on behalf of Carlyle, and therefore treated these incremental expenses as a deemed dividend during the year ended December 31, 2019.

The Convertible Preferred Stock ranks senior to the shares of the Company's common stock, with respect to dividend rights and rights on the distribution of assets on any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company. The Convertible Preferred Stock has a liquidation preference of \$1,000 per share. Holders of the Convertible Preferred Stock are entitled to a cumulative dividend at the rate of 5.5% per year, payable quarterly in arrears. If CommScope does not declare and pay a dividend, the dividend rate will increase by 2.5% to 8.0% per year (and that rate will increase by an additional 0.50% every three months until such unpaid dividend is declared and paid, subject to a cap of 11.0% per year) until all accrued but unpaid dividends have been paid in full. Dividends can be paid in cash, in-kind through the issuance of additional shares of Convertible Preferred Stock or any combination of the two, at the Company's option. During the year ended December 31, 2020, the Company paid dividends in-kind of \$41.8 million, which was recorded as additional Convertible Preferred Stock on the Consolidated Balance Sheets, and cash dividends of \$14.3 million. During the year ended December 31, 2019, the Company paid cash dividends of \$40.7 million.

The Convertible Preferred Stock is convertible at the option of the holders at any time into shares of CommScope common stock at an initial conversion rate of 36.3636 shares of common stock per share of the Convertible Preferred Stock (equivalent to \$27.50 per common share). The conversion rate is subject to customary anti-dilution and other adjustments. At any time after the third anniversary of the issuance of the Convertible Preferred Stock, if the volume weighted average price of CommScope's common stock exceeds the conversion price of \$49.50, as may be adjusted pursuant to the Certificate of Designations, for at least thirty trading days in any period of forty-five consecutive trading days (including the final five trading days of any such forty-five-trading day period) all of the Convertible Preferred Stock may be converted at the election of CommScope into the relevant number of shares of CommScope common stock. On any date during the three months following the eight year and six-month anniversary of the Investment Agreement closing date and the three months following each anniversary thereafter, holders of the Convertible Preferred Stock will have the right to require CommScope to redeem all or any portion of the Convertible Preferred Stock at 100% of the liquidation preference thereof plus all accrued and unpaid dividends. The redemption price is payable, at the Company's option, in cash or a combination of cash and common stock, subject to certain restrictions.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

Upon certain change of control events involving CommScope, CommScope has the right, subject to the holder's right to convert prior to such redemption, to redeem all of the Convertible Preferred Stock for the greater of (i) an amount in cash equal to the sum of the liquidation preference of the Convertible Preferred Stock, all accrued but unpaid dividends and, if the applicable redemption date is prior to the fifth anniversary of the first dividend payment date, the present value, discounted at a rate of 10%, of any remaining scheduled dividends through the five year anniversary of the first dividend payment date, assuming CommScope chose to pay such dividends in cash and (ii) the consideration the holders would have received if they had converted their shares of the Convertible Preferred Stock into CommScope common stock immediately prior to the change of control event. To the extent that CommScope does not exercise the redemption right described in the foregoing sentence, following the effective date of any such change of control event, the holders of the Convertible Preferred Stock can require CommScope to repurchase the Convertible Preferred Stock at the greater of (i) an amount in cash equal to 100% of the liquidation preference thereof plus all accrued but unpaid dividends and (ii) the consideration the holders would have received if they had converted their shares of the Convertible Preferred Stock into CommScope common stock immediately prior to the change of control event.

Holders of the Convertible Preferred Stock are entitled to vote with the holders of the Company's common stock on an as-converted basis. Holders of the Convertible Preferred Stock are entitled to a separate class vote with respect to, among other things, amendments to CommScope's organizational documents that have an adverse effect on the Convertible Preferred Stock, issuances by CommScope of securities that are senior to, or equal in priority with, the Convertible Preferred Stock and issuances of shares of the Convertible Preferred Stock after the closing date of the Acquisition, other than shares issued as dividends with respect to shares of the Convertible Preferred Stock.

15. STOCKHOLDERS' EQUITY

Equity-Based Compensation Plans

Effective June 21, 2019, the Company's stockholders approved the 2019 Long-Term Incentive Plan authorizing 8.0 million shares for issuance, plus additional shares underlying awards outstanding under the predecessor plans, and effective May 8, 2020, the Company's stockholders approved the Amended and Restated 2019 Long-Term Incentive Plan (the 2019 Plan) authorizing an additional 6.8 million shares for issuance. Awards under the 2019 Plan may include stock options, stock appreciation rights, restricted stock, stock units (including restricted stock units (RSUs) and deferred stock units), performance awards (represents any of the awards already listed with a performance-vesting component), other stock-based awards and cash-based awards. Shares remaining available for grant under the predecessor plans were carried over into the 2019 Plan and all future equity awards will be made from the 2019 Plan. Awards granted prior to June 21, 2019 remain subject to the provisions of the predecessor plans. As of December 31, 2020, there were 4.3 million shares available for future grants under the 2019 Plan.

On October 1, 2020, in connection with appointment of the Company's new President and Chief Executive Officer, the Company granted 0.5 million RSUs and 1.1 million performance share units (PSUs) as inducement awards outside of the 2019 Plan. These inducement awards were approved by the Compensation Committee of the Board of Directors of the Company and did not require stockholder approval in accordance with Nasdaq Listing Rule 5635(c). They are generally subject to the same terms and conditions as awards that are made under the 2019 Plan and are presented in combination with the equity-based compensation awards under the 2019 Plan in the information provided below.

As of December 31, 2020, \$113.8 million of total unrecognized compensation expense related to unvested stock options, RSUs and PSUs is expected to be recognized over a remaining weighted average period of 1.4 years. There were no significant capitalized equity-based compensation costs at December 31, 2020.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The following table shows a summary of the equity-based compensation expense included in the Consolidated Statements of Operations:

	Year ended December 31,		
	2020	2019	2018
Selling, general and administrative	\$ 63.0	\$ 55.1	\$ 34.2
Cost of sales	18.5	13.5	5.7
Research and development	33.5	22.2	5.0
Total equity-based compensation expense	<u>\$ 115.0</u>	<u>\$ 90.8</u>	<u>\$ 44.9</u>

The Company believes the valuation techniques and the approaches utilized to develop the underlying assumptions are appropriate in estimating the fair values of its equity-based compensation. Estimates of fair value are not intended to predict actual future events or the value ultimately realized by employees who receive equity awards. Subsequent events are not indicative of the reasonableness of the original estimates of fair value made by the Company.

Stock Options

Stock options are awards that allow the recipient to purchase shares of the Company's common stock at a fixed price. Stock options are granted at an exercise price equal to the Company's stock price at the date of grant. These awards generally vest over three to five years following the grant date and have a contractual term of ten years. These awards vest based on a time-based component or a combination of time and performance-based components.

The following table summarizes the stock option activity (in millions, except per share data and years):

	Shares	Weighted Average Option Exercise Price Per Share	Weighted Average Remaining Contractual Term in Years	Aggregate Intrinsic Value
Options outstanding at December 31, 2019	9.6	\$ 17.70		
Exercised	(1.5)	\$ 5.92		
Expired	(0.2)	\$ 30.31		
Forfeited	(1.7)	\$ 19.05		
Options outstanding at December 31, 2020	<u>6.2</u>	\$ 19.86	6.6	\$ 5.6
Options vested at December 31, 2020	2.7	\$ 21.31	4.5	\$ 5.7
Options unvested at December 31, 2020	3.5	\$ 18.72	8.2	\$ 0.1

The total intrinsic value of options exercised during the years ended December 31, 2020, 2019 and 2018 was \$7.1 million, \$9.8 million and \$12.7 million, respectively.

The exercise prices of outstanding options at December 31, 2020 were in the following ranges (in millions, except per share data and years):

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Shares	Weighted Average Remaining Contractual Life in Years	Weighted Average Exercise Price Per Share	Shares	Weighted Average Exercise Price Per Share
\$5.50 to \$18.50	0.9	1.7	\$ 7.02	0.8	\$ 6.09
\$18.51 to \$30.00	4.4	8.1	\$ 19.06	1.1	\$ 20.41
\$30.01 to \$45.00	0.9	6.1	\$ 36.45	0.8	\$ 36.31
\$5.50 to \$45.00	<u>6.2</u>	6.6	\$ 19.86	<u>2.7</u>	\$ 21.31

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The Company uses the Black-Scholes model to estimate the fair value of stock option awards at the date of grant. Key inputs and assumptions used in the model include the exercise price of the award, the expected option term, the risk-free interest rate, stock price volatility and the Company's projected dividend yield. The expected term represents the period over which the Company's employees are expected to hold their options. The risk-free interest rate reflects the yield on zero-coupon U.S. treasury securities with a term equal to the option's expected term. Expected volatility is derived based on the historical volatility of the Company's stock. The Company's projected dividend yield is zero.

There were no stock option grants during the year ended December 31, 2020. The following table presents the weighted average assumptions used to estimate the fair value of stock option awards granted for the years ended December 31, 2019 and 2018:

	Year Ended December 31,	
	2019	2018
Expected option term (in years)	6.5	6.0
Risk-free interest rate	2.2%	2.7%
Expected volatility	40.0%	35.0%
Weighted average exercise price	\$ 18.47	\$ 38.34
Weighted average fair value at grant date	\$ 8.00	\$ 14.83

Restricted Stock Units

RSUs entitle the holder to shares of common stock after a vesting period that generally ranges from one to three years. The fair value of the awards is determined on the grant date based on the Company's stock price.

The following table summarizes the RSU activity (in millions, except per share data):

	Restricted Stock Units	Weighted Average Grant Date Fair Value Per Share
Non-vested share units at December 31, 2019	7.7	\$ 22.30
Granted	10.2	\$ 10.49
Vested and shares issued	(3.3)	\$ 23.09
Forfeited	(1.4)	\$ 15.91
Non-vested share units at December 31, 2020	<u>13.2</u>	\$ 13.62

The weighted average grant date fair value per unit of these awards granted during the years ended December 31, 2020, 2019 and 2018 was \$10.49, \$20.29 and \$37.87, respectively. The total fair value of RSUs that vested during the years ended December 2020, 2019 and 2018 was \$76.0 million, \$56.0 million and \$42.1 million, respectively.

Performance Share Units

PSUs are stock awards in which the number of shares ultimately received by the employee depends on Company performance against specified targets. Certain of the Company's PSU awards are based on an internal performance condition and such awards typically vest over three years, with the number of shares issued varying from 0% to 200% of the number of PSUs granted, depending on performance. The fair value of each PSU is determined on the date of grant based on the Company's stock price. For PSUs granted in 2018 that had a cumulative three-year revenue performance measure, the performance was below minimum resulting in a negative share performance adjustment that was not material to the non-vested share units as of December 31, 2020.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

In October 2019, the Company awarded 2.3 million PSUs under a special incentive plan based on the Company's performance for the second half of 2019. The special awards vested over one year in October 2020. As of December 31, 2020, no PSUs with an internal performance condition remained outstanding.

During the year ended December 31, 2020, the Company granted PSU awards with a market condition. Performance for these awards is based on achievement of certain CommScope stock price milestones as well as a service condition. The number of shares that can be issued under these awards varies from 0% to 100% of the number of PSUs granted, depending on performance. The Company uses a Monte Carlo simulation model to estimate the fair value of PSUs with a market condition at the date of grant. Key assumptions used in the model include the risk-free interest rate, which reflects the yield on zero-coupon U.S. treasury securities, and stock price volatility which is derived based on the historical volatility of the Company's stock.

The following table presents the weighted average assumptions used in the valuation and the fair value of PSU awards granted with a market condition:

	Year Ended December 31, 2020
Risk-free interest rate	0.2%
Expected volatility	51.7%
Weighted average fair value at grant date	\$ 4.03

The following table summarizes the PSU activity (in millions, except per share data):

	Performance Share Units	Weighted Average Grant Date Fair Value Per Share
Non-vested share units at December 31, 2019	2.7	\$ 12.47
Granted	1.6	\$ 4.63
Vested and shares issued	(2.5)	\$ 7.29
Forfeited	(0.3)	\$ 12.10
Non-vested share units at December 31, 2020	<u>1.5</u>	<u>\$ 4.03</u>

The weighted average grant date fair value per unit of these awards granted during the years ended December 31, 2020, 2019 and 2018 was \$4.63, \$11.19 and \$38.34, respectively. The total fair value of PSUs that vested during the years ended December 31, 2020, 2019 and 2018 was \$18.4 million, \$2.7 million, and \$7.9 million, respectively.

16. COMMITMENTS AND CONTINGENCIES

The following table summarizes the activity in the product warranty accrual, included in accrued and other liabilities and other noncurrent liabilities:

	Year Ended December 31,		
	2020	2019	2018
Product warranty accrual, beginning of period	\$ 61.0	\$ 15.6	\$ 16.9
Obligation assumed under ARRIS acquisition	—	57.4	—
Provision for warranty claims	30.9	18.4	6.2
Warranty claims paid	(32.4)	(30.4)	(7.4)
Foreign exchange	—	—	(0.1)
Product warranty accrual, end of period	<u>\$ 59.5</u>	<u>\$ 61.0</u>	<u>\$ 15.6</u>

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The Company is subject to various federal, state, local and foreign laws and regulations governing the use, discharge, disposal and remediation of hazardous materials. Compliance with current laws and regulations has not had, and is not expected to have, a materially adverse effect on the Company's financial condition or results of operations.

Legal Proceedings

The Company is a party to certain intellectual property claims and also periodically receives notices asserting that its products infringe on another party's patents and other intellectual property rights. These claims and assertions, whether against the Company directly or against its customers, could require the Company to pay damages, royalties, stop offering the relevant products and/or cease other activities. The Company may also be called upon to indemnify certain customers for costs related to products sold to such customers. While the outcome of these claims and notices is uncertain and a reasonable estimate of the loss from unfavorable outcomes in certain of these matters cannot be determined, an adverse outcome could result in a material loss.

As of December 31, 2020, the Company had a liability of \$27.7 million recorded in accrued and other liabilities on the Consolidated Balance Sheets related to certain intellectual property assertions that have been settled or are in the process of settlement. Of that amount, \$21.7 million was assumed in the Acquisition. The Company paid \$109.0 million during the year ended December 31, 2020 to settle intellectual property assertions. For the year ended December 31, 2020, the Company recorded a charge to cost of sales in the Consolidated Statements of Operations of \$7.8 million related to these intellectual property assertions. These amounts are primarily reflected in the results of the Home and VCN segments.

The Company is also a plaintiff or a defendant in certain other pending legal matters in the normal course of business. Management believes none of these other pending legal matters will have a material adverse effect on the Company's business or financial condition upon final disposition.

17. INDUSTRY SEGMENTS, MAJOR CUSTOMERS, RELATED PARTY TRANSACTIONS AND GEOGRAPHIC INFORMATION

Segment Information

As of January 1, 2020, the Company reorganized its internal management and reporting structure as part of the integration of the Acquisition. The reorganization changed the information regularly reviewed by the Company's chief operating decision maker for purposes of allocating resources and assessing performance. As a result, the Company is reporting financial performance based on four reportable segments: Broadband, Home, OWN and VCN. These reportable segments are based upon the nature of the products and services they offer.

The Broadband segment provides an end-to-end product portfolio serving the telco and cable provider broadband market. The segment brings together the Network Cable and Connectivity business with the Network and Cloud business and includes converged cable access platform, passive optical networking, video systems, access technologies, fiber and coaxial cable, fiber and copper connectivity and hardened closures.

The Home segment comprises the former Consumer Premises Equipment business and the segment includes subscriber-based solutions that support broadband and video applications. The broadband offerings in the Home segment include devices that provide residential connectivity to a service provider's network, such as digital subscriber line and cable modems and telephony and data gateways which incorporate routing and Wi-Fi functionality. Video offerings include set top boxes that support cable, satellite and Internet Protocol television content delivery and include products such as digital video recorders, high definition set top boxes and hybrid set top devices.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The OWN segment focuses on the macro and metro cell markets. The segment includes base station antennas, RF filters, tower connectivity, microwave antennas, metro cell products, cabinets, steel, accessories, Spectrum Access System and Comsearch. As the Company's wireless operator customers shift a portion of their 5G capital expenditures from the macro tower to the metro cell, the portfolio will strategically help to make the transition smooth and cost-effective.

The VCN segment targets both public and private networks for campuses, venues, data centers and buildings. The segment combines Wi-Fi and switching, distributed antenna systems, licensed and unlicensed small cells and enterprise fiber and copper infrastructure.

The following table provides summary financial information by reportable segment:

	December 31,	
	2020	2019
Identifiable segment-related assets:		
Broadband	\$ 6,451.6	\$ 6,681.1
Home	1,698.5	2,178.7
OWN	1,264.4	1,394.1
VCN	3,352.3	3,476.4
Total identifiable segment-related assets	12,766.8	13,730.3
Reconciliation to total assets:		
Cash and cash equivalents	521.9	598.2
Deferred income tax assets	288.1	103.1
Total assets	<u>\$ 13,576.8</u>	<u>\$ 14,431.6</u>

The Company's measurement of segment performance is adjusted EBITDA (earnings before interest, income taxes, depreciation and amortization). The Company defines adjusted EBITDA as operating income, adjusted to exclude depreciation, amortization of intangible assets, restructuring costs, asset impairments, equity-based compensation, transaction and integration costs and other items that the Company believes are useful to exclude in the evaluation of operating performance from period to period because these items are not representative of the Company's core business.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

The following table provides net sales, adjusted EBITDA, depreciation expense and additions to property, plant and equipment by reportable segment:

	Year Ended December 31,		
	2020	2019	2018
Net sales:			
Broadband	\$ 2,895.7	\$ 2,363.8	\$ 1,448.8
Home	2,360.0	2,539.0	—
OWN	1,243.7	1,475.0	1,490.5
VCN	1,936.5	1,967.3	1,629.2
Consolidated net sales	<u>\$ 8,435.9</u>	<u>\$ 8,345.1</u>	<u>\$ 4,568.5</u>
Segment adjusted EBITDA:			
Broadband	\$ 640.5	\$ 473.3	\$ 309.4
Home	116.2	193.7	—
OWN	278.5	361.2	323.6
VCN	180.0	269.3	280.6
Total segment adjusted EBITDA	1,215.2	1,297.5	913.6
Amortization of intangible assets	(630.5)	(593.2)	(264.6)
Restructuring costs, net	(88.4)	(87.7)	(44.0)
Equity-based compensation	(115.0)	(90.8)	(44.9)
Asset impairments	(206.7)	(376.1)	(15.0)
Transaction and integration costs	(24.9)	(195.3)	(19.5)
Acquisition accounting adjustments	(20.6)	(264.2)	—
Patent claims and litigation settlements	(16.3)	(55.0)	—
Executive severance	(6.3)	—	—
Depreciation	(158.3)	(143.7)	(75.6)
Consolidated operating income (loss)	<u>\$ (51.8)</u>	<u>\$ (508.5)</u>	<u>\$ 450.0</u>
Depreciation expense:			
Broadband	\$ 59.2	\$ 55.6	\$ 29.3
Home	34.3	30.2	—
OWN	17.0	17.5	17.4
VCN	47.8	40.4	28.9
Consolidated depreciation expense	<u>\$ 158.3</u>	<u>\$ 143.7</u>	<u>\$ 75.6</u>
Additions to property, plant and equipment:			
Broadband	\$ 55.2	\$ 42.5	\$ 49.0
Home	19.0	6.5	—
OWN	15.9	16.7	19.7
VCN	31.1	38.4	13.6
Consolidated additions to property, plant and equipment	<u>\$ 121.2</u>	<u>\$ 104.1</u>	<u>\$ 82.3</u>

Customer Information

Net sales to Comcast Corporation and affiliates (Comcast) accounted for 11% of the Company's net sales during both of the years ended December 31, 2020 and 2019. Net sales to Comcast are derived from the Broadband, Home and VCN segments. Other than Comcast, no direct customer accounted for 10% or more of the Company's total net sales during the years ended December 31, 2020 or 2019. Net sales to Anixter International Inc. and its affiliates (Anixter) accounted for 11% of the Company's total net sales during the year ended December 31, 2018. Net sales to Anixter primarily originate in the VCN segment. Other than Anixter, no direct customer accounted for 10% or more of the Company's total net sales for the year ended December 31, 2018.

CommScope Holding Company, Inc.
Notes to Consolidated Financial Statements-(Continued)
(In millions, unless otherwise noted)

No direct customers accounted for 10% or more of the Company's accounts receivable as of December 31, 2020 or 2019.

Related Party Transactions

See Note 14 for a discussion of the Convertible Preferred Stock issued to Carlyle to finance the Acquisition. Other than transactions related to the Convertible Preferred Stock, there were no material related party transactions for the years ended December 31, 2020, 2019 or 2018.

Geographic Information

Sales to customers located outside of the U.S. comprised 39%, 41% and 44% of total net sales during the years ended December 31, 2020, 2019 and 2018, respectively. Sales by geographic region, based on the destination of product shipments or service provided, were as follows:

	Year Ended December 31,		
	2020	2019	2018
United States	\$ 5,185.3	\$ 4,923.3	\$ 2,539.2
Europe, Middle East and Africa (EMEA)	1,530.2	1,543.6	963.0
Asia Pacific (APAC)	797.2	919.7	735.6
Caribbean and Latin America (CALA)	610.3	650.7	242.9
Canada	312.9	307.8	87.8
Consolidated net sales	<u>\$ 8,435.9</u>	<u>\$ 8,345.1</u>	<u>\$ 4,568.5</u>

Long-lived assets, excluding intangible assets, consist substantially of property, plant and equipment and right of use assets. The Company's long-lived assets, excluding intangible assets, located in the U.S., EMEA, APAC and CALA regions represented the following percentages of such long-lived assets: 62%, 15%, 17% and 6%, respectively, as of both December 31, 2020 and 2019.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of the Chief Executive Officer (CEO) and Chief Financial Officer (CFO), evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)) as of the end of the period covered by this report.

Based on this evaluation, our CEO and CFO have concluded that, as of the end of the period covered by this report, these disclosure controls and procedures were effective and operating to provide reasonable assurance that information that we are required to disclose in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission, and that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

The management of CommScope is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act, as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the consolidated financial statements.

CommScope's management assessed the effectiveness of CommScope's internal control over financial reporting as of December 31, 2020. In making this assessment, CommScope's management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control – Integrated Framework (2013). Based on this assessment, management concluded that, as of December 31, 2020, CommScope's internal control over financial reporting is effective based on the COSO internal control criteria.

CommScope's independent registered public accounting firm, Ernst & Young LLP, has issued an attestation report on the effectiveness of CommScope's internal control over financial reporting, which is included in Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal controls over financial reporting during the quarter ended December 31, 2020 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Inherent Limitations of Disclosure Controls and Internal Control over Financial Reporting

Because of their inherent limitations, our disclosure controls and procedures and our internal control over financial reporting may not prevent all material errors or fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. The effectiveness of our disclosure controls and procedures and our internal control over financial reporting is subject to risks, including that the controls may become inadequate because of changes in conditions or that the degree of compliance with our policies or procedures may deteriorate.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2021 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Code of Ethics for Principal Executive and Senior Financial and Accounting Officers

We have adopted the CommScope Holding Company, Inc. Code of Ethics for Principal Executive and Senior Financial and Accounting Officers (the Senior Officer Code of Ethics), a code of ethics that applies to our Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer. The Senior Officer Code of Ethics is publicly available on our web site at www.commscope.com. If we make an amendment to, or grant a waiver from, a provision of the Senior Officer Code of Ethics, we will disclose the nature of such waiver or amendment on our web site.

ITEM 11. EXECUTIVE COMPENSATION

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2021 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2021 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2021 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2021 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) Documents Filed as Part of this Report:

1. *Audited Consolidated Financial Statements*

The following consolidated financial statements of CommScope Holding Company, Inc. are included under Part II, Item 8:

Reports of Independent Registered Public Accounting Firm

Consolidated Statements of Operations for the Years Ended December 31, 2020, 2019 and 2018

Consolidated Statements of Comprehensive Income (Loss) for the Years Ended December 31, 2020, 2019 and 2018

Consolidated Balance Sheets as of December 31, 2020 and 2019

Consolidated Statements of Cash Flows for the Years Ended December 31, 2020, 2019 and 2018

Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2020, 2019 and 2018

Notes to Consolidated Financial Statements

2. *Financial Statement Schedules*

All schedules are omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.

3. *List of Exhibits.* See Index of Exhibits included herein.

Index of Exhibits

<u>Exhibit No.</u>	<u>Description</u>
* 2.1	Stock and Asset Purchase Agreement, dated January 27, 2015, by and among CommScope Holding Company, Inc., CommScope, Inc. and TE Connectivity Ltd. (Incorporated by reference to Exhibit 2.1 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on January 28, 2015).
* 2.2	Bid Conduct Agreement, dated November 8, 2018, among CommScope Holding Company, Inc. and ARRIS International plc (the Bid Conduct Agreement) (Incorporated by reference to Exhibit 2.1 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on November 8, 2018).
* 2.3	First Amendment to Bid Conduct Agreement, dated January 2, 2019, between CommScope Holding Company, Inc. and ARRIS International plc (Incorporated by reference to Exhibit 2.1 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on January 3, 2019).
* 3.1	Amended and Restated Certificate of Incorporation of CommScope Holding Company, Inc. (Incorporated by reference to Exhibit 3.1 of the Registrant's Form 10-Q (File No. 001-36146), filed with the SEC on November 7, 2013).
* 3.2	Fourth Amended and Restated By-Laws of CommScope Holding Company, Inc. (as adopted December 13, 2016) (Incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on December 14, 2016).
* 3.3	Certificate of Designations Designating Series A Preferred Stock (Incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on April 4, 2019).
* 4.1	Indenture governing the 6.000% Senior Notes due 2025 by and between the CommScope Technologies Finance LLC and Wilmington Trust, National Association, as trustee, dated as of June 11, 2015 (including form of 6.000% Senior Note due 2025) (Incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on June 12, 2015).
* 4.2	First Supplemental Indenture, dated August 28, 2015, by and among CommScope Technologies LLC, the Guarantors party thereto and Wilmington Trust, National Association, as trustee (Incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on August 28, 2015).
* 4.3	Indenture governing the 5.000% Senior Notes due 2027, by and among CommScope Technologies LLC, the guarantors named therein and Wilmington Trust, National Association, as trustee and as collateral agent, dated as of March 13, 2017, (including form of 5.000% Senior Note due 2027) (Incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on March 13, 2017).
* 4.4	Indenture, dated as of February 19, 2019, by and between the Escrow Issuer and Wilmington Trust, National Association, as trustee, including the form of 8.25% Senior Note due 2027 (Incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on February 19, 2019).
* 4.5	First Supplemental Indenture, dated as of April 4, 2019, by and among CommScope, Inc., the guarantors party thereto and Wilmington Trust, National Association, as trustee (Incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed with the SEC on April 4, 2019).

<u>Exhibit No.</u>	<u>Description</u>
* 4.6	Indenture, dated as of February 19, 2019, by and between the Escrow Issuer and Wilmington Trust, National Association, as trustee and collateral agent, including the form of 5.50% Senior Secured Note due 2024 and form of 6.00% Senior Secured Note due 2026 (Incorporated by reference to Exhibit 4.3 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on February 19, 2019).
* 4.7	First Supplemental Indenture, dated as of April 4, 2019, by and among CommScope, Inc., CommScope Holding Company, Inc., the other guarantors party thereto, Wilmington Trust, National Association, as trustee, and Wilmington Trust, National Association, as collateral agent (Incorporated by reference to Exhibit 4.4 to the Registrant's Current Report on Form 8-K filed with the SEC on April 4, 2019).
* 4.8	Indenture, dated as of July 1, 2020, by and between Wilmington Trust, National Association, as trustee, including the form of 7.125% Senior Note due 2028 (Incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on July 2, 2020).
* 4.9	Description of Securities Registered Pursuant to Section 12 of the Exchange Act (Incorporated by reference to Exhibit 4.10 to the Registrant's Annual Report on Form 10-K filed with the SEC on February 20, 2020).
* 10.1	Revolving Credit and Guaranty Agreement, dated as of January 14, 2011, by and among Cedar I Holding Company, Inc. (now CommScope Holding Company, Inc.), CommScope, Inc., as Parent Borrower, the U.S. Co-Borrowers and European Co-Borrowers named therein, the guarantors named therein, the Lenders from time to time party thereto, J.P. Morgan Securities LLC, as Lead Arranger and Bookrunner, JPMorgan Chase Bank, N.A., as US Administrative Agent, and J.P. Morgan Europe Limited, as European Administrative Agent and the Senior Managing Agents and Documentation Agents named therein (the Revolving Credit Facility) (Incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.2	Amendment No. 1 to the Revolving Credit Facility, dated as of March 9, 2012, among CommScope, Inc., as Parent Borrower, the U.S. Borrowers, European Co-Borrowers and Guarantors named therein, the Lenders party thereto, JPMorgan Chase Bank, N.A., as U.S. Administrative Agent, and J.P. Morgan Europe Limited, as European Administrative Agent (Incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.3	Amendment No. 2 to the Revolving Credit Facility, dated as of May 21, 2015, among CommScope, Inc., as Parent Borrower, CommScope Holding Company, Inc., as Holdings, the US Co-Borrowers and European Co-Borrowers named therein, the Lenders party thereto, JPMorgan Chase Bank, N.A., as U.S. Administrative Agent, and J.P. Morgan Europe Limited, as European Administrative Agent (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), originally filed with the SEC on May 22, 2015).
* 10.4	Revolving Credit Facility Pledge and Security Agreement, dated as of January 14, 2011, among CommScope, Inc. (as successor by merger to Cedar I Merger Sub, Inc.) and the additional Grantors party thereto, in favor of JPMorgan Chase Bank, N.A., as collateral agent and as administrative agent for the Secured Parties referred to therein (Incorporated by reference to Exhibit 10.3 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.5	Patent Security Agreement, dated as of January 14, 2011, made by Allen Telecom LLC, Andrew LLC and CommScope, Inc. of North Carolina in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).

<u>Exhibit No.</u>	<u>Description</u>
* 10.6	Trademark Security Agreement, dated as of January 14, 2011, made by Allen Telecom LLC, Andrew LLC and CommScope, Inc. of North Carolina in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.5 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.7	Copyright Security Agreement, dated as of January 14, 2011, made by Allen Telecom LLC, Andrew LLC and CommScope, Inc. of North Carolina in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.6 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.8	Credit Agreement, dated as of January 14, 2011, among CommScope, Inc. (as successor by merger to Cedar I Merger Sub, Inc.), as Borrower, CommScope Holding Company, Inc.(as successor by merger to Cedar I Holding Company, Inc.), the Lenders from time to time party thereto, JPMorgan Chase Bank, N.A. as Administrative Agent and Collateral Agent and J.P. Morgan Securities LLC as Arranger and Sole Bookrunner (Incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.8.1	Amendment Agreement, dated as of March 7, 2012, among CommScope, Inc., as Borrower, CommScope Holding Company, Inc., the subsidiary guarantors party thereto, the Lenders from time to time party thereto, JPMorgan Chase Bank, N.A. as Administrative Agent and Collateral Agent and J.P. Morgan Securities LLC as Arranger and Sole Bookrunner (Incorporated by reference to Exhibit 10.8 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.8.2	Amendment Agreement, dated as of March 8, 2013, among CommScope, Inc., as Borrower, CommScope Holding Company, Inc., the subsidiary guarantors party thereto, the Lenders from time to time party thereto, JPMorgan Chase Bank, N.A. as Administrative Agent and Collateral Agent , J.P. Morgan Securities LLC and Deutsche Bank Trust Company Americas, as syndication agent (Incorporated by reference to Exhibit 10.9 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.8.3	Amendment No. 3, dated as of December 3, 2013, to the Credit Agreement, dated as of January 14, 2011, among CommScope, Inc., as Borrower, CommScope Holding Company, Inc., the subsidiary guarantors named therein, the several banks and other financial institutions or entities from time to time parties thereto as Lenders, JPMorgan Chase Bank, N.A., as administrative agent and collateral agent and the other agents and arrangers party thereto. (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on December 3, 2013).
* 10.8.4	Amendment Agreement, dated as of October 31, 2016, to the Credit Agreement, dated as of January 11, 2011, among CommScope, Inc., as Borrower, CommScope Holding Company, Inc., as Holdings, the several banks and other financial institutions or entities from time to time parties thereto as Lenders, JPMorgan Chase Bank, N.A., as Administrative Agent and the other agents and arrangers party thereto. (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on October 31, 2016).
* 10.8.5	Amendment Agreement, dated as of May 31, 2017, to the Credit Agreement, dated as of January 11, 2011, among CommScope, Inc., as Borrower, CommScope Holding Company, Inc., as Holdings, the several banks and other financial institutions or entities from time to time parties thereto as Lenders, JPMorgan Chase Bank, N.A., as Administrative Agent and the other agents and arrangers party thereto. (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on May 31, 2017).

<u>Exhibit No.</u>	<u>Description</u>
* 10.9	Term Loan Credit Facility Pledge and Security Agreement, dated as of January 14, 2011, among CommScope, Inc. (as successor by merger to Cedar I Merger Sub, Inc.) and the additional Grantors party thereto, in favor of JPMorgan Chase Bank, N.A., as collateral agent and as administrative agent for the Secured Parties referred to therein (Incorporated by reference to Exhibit 10.10 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.10	Patent Security Agreement, dated as of January 14, 2011, made by Allen Telecom LLC, Andrew LLC and CommScope, Inc. of North Carolina in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.11 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.11	Trademark Security Agreement, dated as of January 14, 2011, made by Allen Telecom LLC, Andrew LLC and CommScope, Inc. of North Carolina in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.12 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.12	Copyright Security Agreement, dated as of January 14, 2011, made by Allen Telecom LLC, Andrew LLC and CommScope, Inc. of North Carolina in favor of JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.13 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.13	Holdings Guaranty, dated as of January 14, 2011, by CommScope Holding Company, Inc. in favor of the Secured Parties referred to therein (Incorporated by reference to Exhibit 10.14 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.14	Subsidiary Guaranty, dated as of January 14, 2011, from the Subsidiary Guarantors named therein in favor of the Secured Parties referred to therein (Incorporated by reference to Exhibit 10.15 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.15	Intercreditor Agreement, dated as of January 14, 2011, by and among CommScope Inc., CommScope Holding Company, Inc., certain Subsidiaries party thereto as a Guarantor, JPMorgan Chase Bank, N.A., as administrative agent and collateral agent for the holders of Revolving Credit Obligations, and JPMorgan Chase Bank, N.A., as administrative agent and collateral agent for the holders of Initial Fixed Asset Obligations (Incorporated by reference to Exhibit 10.16 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), originally filed with the SEC on August 2, 2013).
* 10.16	Incremental Joinder Agreement, dated August 28, 2015, by and among CommScope, Inc., as Borrower, CommScope Holding Company, Inc., as Holdings, the Subsidiary Guarantors party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A. as Administrative Agent and Collateral Agent, and JPMorgan Chase Bank, N.A., as Escrow Administrative Agent (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on August 28, 2015).
* 10.17	Notes Pledge and Security Agreement, dated as of June 11, 2015, among CommScope, Inc., as a Grantor and the additional Grantors party thereto, in favor of Wilmington Trust, National Association, as collateral agent under the Indenture referred to therein (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on June 12, 2015).
* 10.18	Amended and Restated Employment Agreement between Frank M. Drendel and CommScope, Inc., dated January 14, 2011, as amended on September 12, 2013 (Incorporated by reference to Exhibit 10.18 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013).***

<u>Exhibit No.</u>	<u>Description</u>
* 10.19	Employment Agreement between Marvin S. Edwards, Jr. and CommScope, Inc., dated January 14, 2011, as amended on September 12, 2013 (Incorporated by reference to Exhibit 10.20 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.20	Employment Agreement between Mark A. Olson and CommScope, Inc., dated January 21, 2014 (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on January 23, 2014). ***
* 10.21	Employment Agreement between Charles L. Treadway and CommScope, Inc., dated October 1, 2020 (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on October 1, 2020). ***
* 10.22	Employment Agreement between Claudius E. Watts IV and CommScope, Inc., dated October 1, 2020 (Incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on October 1, 2020). ***
* 10.23	Form of Amended and Restated Severance Protection Agreement between CommScope, Inc. and certain executive officers entered into prior to 2013 (Incorporated by reference to Exhibit 10.21 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.24	Form of Amendment, effective June 3, 2016, to Severance Protection Agreement between CommScope, Inc. and certain executive officers entered into prior to 2013 (Incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on July 28, 2016). ***
* 10.25	Form of Amended and Restated Severance Protection Agreement between CommScope, Inc. and certain executive officers entered into after 2015 (Incorporated by reference to Exhibit 10.23 of the Registrant's Annual Report on Form 10-K (File No. 001-36146), filed with the SEC on February 20, 2019). ***
* 10.26	Form of Indemnification Agreement (Incorporated by reference to Exhibit 10.22 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.27	Amended and Restated CommScope, Inc. 2006 Long Term Incentive Plan (as amended and restated effective February 28, 2007) (Incorporated by reference to Exhibit 10.25 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.28	Amended and Restated CommScope Holding Company, Inc. 2011 Incentive Plan (as amended and restated effective February 19, 2013) (Incorporated by reference to Exhibit 10.26 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.29	Forms of Nonqualified Stock Option Certificate under the Amended and Restated CommScope Holding Company, Inc. 2011 Incentive Plan (Incorporated by reference to Exhibit 10.31 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.30	CommScope Holding Company, Inc. Amended and Restated 2013 Long-Term Incentive Plan (as amended and restated effective February 21, 2017) (Incorporated by reference to Exhibit 10.28 of the Registrant's Annual Report on Form 10-K (File No. 001-36146), filed with the SEC on February 23, 2017). ***

<u>Exhibit No.</u>	<u>Description</u>
* 10.31	Form of Non-Qualified Stock Option Certificate under the CommScope Holding Company, Inc. 2013 Long-Term Incentive Plan (Incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on April 30, 2015). ***
* 10.32	CommScope Holding Company, Inc. Amendment to Outstanding Options, effective March 7, 2016 (Incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on April 28, 2016). ***
* 10.33	Form of Restricted Stock Unit Award Certificate under the CommScope Holding Company, Inc. 2013 Long-Term Incentive Plan (for grants in 2016 and later) (Incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on April 28, 2016). ***
* 10.34	Form of Performance Share Unit Award Certificate under the CommScope Holding Company, Inc. 2013 Long-Term Incentive Plan (for grants in 2016 and later) (Incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on April 28, 2016). ***
* 10.35	Form of Non-Qualified Stock Option Certificate under the CommScope Holding Company, Inc. 2013 Long-Term Incentive Plan (for grants in 2016 and later) (Incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on April 28, 2016). ***
* 10.36	CommScope Holding Company, Inc. Annual Incentive Plan, as amended February 17, 2016 (Incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on April 28, 2016). ***
* 10.37	Amended and Restated CommScope, Inc. Supplemental Executive Retirement Plan (as amended and restated effective April 9, 2009) (Incorporated by reference to Exhibit 10.30 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.38	First Amendment, dated January 12, 2011, to Amended and Restated CommScope, Inc. Supplemental Executive Retirement Plan (Incorporated by reference to Exhibit 10.32 of Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-190354), filed with the SEC on September 12, 2013). ***
* 10.39	CommScope Holding Company, Inc. Non-Employee Director Compensation Plan, as amended on November 28, 2017 (Incorporated by reference to Exhibit 10.39 of the Registrant's Annual Report on Form 10-K (File No. 001-36146), filed with the SEC on February 15, 2018).
* 10.40	Form of Restricted Stock Unit Award Certificate under the CommScope Holding Company, Inc. Non-Employee Director Compensation Plan, which is operated as a subplan of the CommScope Holding Company, Inc. 2013 Long-Term Incentive Plan (Incorporated by reference to Exhibit 10.34 of the Registrant's Annual Report on Form 10-K (File No. 001-36146), filed with the SEC on February 20, 2014).
* 10.41	Form of Non-Qualified Stock Option Certificate under the CommScope Holding Company, Inc. Amended and Restated 2013 Long-Term Incentive Plan (for grants to senior executive officers in 2019) (Incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on August 8, 2019). ***
* 10.42	Form of Restricted Stock Unit Award Certificate under the CommScope Holding Company, Inc. Amended and Restated 2019 Long-Term Incentive Plan (Incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K (File No. 001-36146), filed with the SEC on October 1, 2020). ***

<u>Exhibit No.</u>	<u>Description</u>
* 10.43	Form of Performance Share Unit Award Certificate under the CommScope Holding Company, Inc. Amended and Restated 2019 Long-Term Incentive Plan (service and average stock price vesting) (Incorporated by reference to Exhibit 10.3 of the Registrant’s Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on October 1, 2020). ***
* 10.44	CommScope Holding Company, Inc. Deferred Compensation Plan (as amended and restated effective January 1, 2017) ((Incorporated by reference to Exhibit 10.41 of the Registrant’s Annual Report on Form 10-K (File No. 001-36146), filed with the SEC on February 23, 2017). ***
* 10.45	CommScope Holding Company, Inc. 2019 Long-Term Incentive Plan (Incorporated by reference to Exhibit 99.1 to the Registrant’s Registration Statement on Form S-8 (File No. 333-232354), filed with the Commission on June 26, 2019). ***
* 10.46	Investment Agreement, dated November 8, 2018, by and between CommScope Holding Company, Inc. and Carlyle Partners VII S1 Holdings, L.P. (Incorporated by reference to Exhibit 10.1 of the Registrant’s Current Report on Form 8-K (File No. 001-36146), filed with the SEC on November 8, 2018).
* 10.47	Commitment Letter, dated November 8, 2018, by and among CommScope Holding Company, Inc., CommScope, Inc., JPMorgan Chase Bank, N.A., Bank of America, N.A., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Deutsche Bank AG New York Branch, Deutsche Bank AG Cayman Islands Branch and Deutsche Bank Securities Inc. (Incorporated by reference to Exhibit 10.2 of the Registrant’s Current Report on Form 8-K (File No. 001-36146), filed with the SEC on November 8, 2018).
* 10.48	Registration Rights Agreement, dated as of April 4, 2019, by and between CommScope Holding Company, Inc. and Carlyle Partners VII S1 Holdings, L.P. (Incorporated by reference to Exhibit 10.1 to the Registrant’s Current Report on Form 8-K filed with the SEC on April 4, 2019).
* 10.49	Revolving Credit Agreement, dated as of April 4, 2019, among CommScope Holding Company, Inc., CommScope, Inc., the co-borrowers named therein, JPMorgan Chase Bank, N.A., as administrative agent and collateral agent, and the other agents and lenders party thereto (Incorporated by reference to Exhibit 10.2 to the Registrant’s Current Report on Form 8-K filed with the SEC on April 4, 2019).
* 10.50	Term Loan Credit Agreement, dated as of April 4, 2019, among CommScope, Inc., as the borrower, CommScope Holding Company, Inc., as holdings, JPMorgan Chase Bank, N.A., as administrative agent and collateral agent, and the other agents and lenders party thereto (Incorporated by reference to Exhibit 10.3 to the Registrant’s Current Report on Form 8-K filed with the SEC on April 4, 2019).
* 18.1	Preferability Letter from Ernst & Young LLP, Independent Registered Public Accounting Firm (Incorporated by Reference to Exhibit 18.1 of the Registrant’s Quarterly Report on Form 10-Q (File No. 001-36146), filed with the SEC on August 8, 2019).
** 21.1	List of Subsidiaries
** 23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm
** 31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a).
** 31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a).
± 32.1	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished pursuant to Item 601(b)(32)(ii) of Regulation S-K).
† 101.INS	Inline XBRL Instance Document – The instance document does not appear in the interactive

<u>Exhibit No.</u>	<u>Description</u>
	data file because its XBRL tags are embedded within the inline XBRL document.
† 101.SCH	Inline XBRL Schema Document, furnished herewith.
† 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 (embedded within the Inline XBRL document).
*	Previously filed
**	Filed as an exhibit to the Company’s Form 10-K, filed with the Securities and Exchange Commission on February 17, 2021.
***	Management contract or compensatory plan or arrangement.
†	In accordance with Rule 406T of Regulation S-T, the information in these exhibits is furnished and deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, is deemed not filed for purposes of Section 18 of the Exchange Act of 1934, and otherwise is not subject to liability under these sections.
±	In accordance with Item 601(b)(32)(ii) of Regulation S-K and SEC Release No. 33-8238 and 34-47986, Final Rule: Management’s Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, the certification furnished in Exhibit 32.1 hereto is deemed to accompany this Form 10-K and will not be deemed “filed” for purposes of Section 18 of the Exchange Act. Such certification will not be deemed to be incorporated by reference into any filings under the Securities Act or the Exchange Act, except to the extent that the registrant specifically incorporates it by reference.

SIGNATURES

Pursuant to the requirements of Section 13 or Section 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.

DATE: February 16, 2021

COMMSCOPE HOLDING COMPANY, INC

BY: /s/ Charles L. Treadway

Charles L. Treadway

President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ CHARLES L. TREADWAY</u> Charles L. Treadway	President, Chief Executive Officer and Director (Principal Executive Officer)	February 16, 2021
<u>/s/ ALEXANDER W. PEASE</u> Alexander W. Pease	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 16, 2021
<u>/s/ BROOKE B. CLARK</u> Brooke B. Clark	Senior Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 16, 2021
<u>/s/ CLAUDIUS E. WATTS IV</u> Claudius E. Watts IV	Director and Chairman of the Board	February 16, 2021
<u>/s/ AUSTIN A. ADAMS</u> Austin A. Adams	Director	February 16, 2021
<u>/s/ MARY S. CHAN</u> Mary S. Chan	Director	February 16, 2021
<u>/s/ FRANK M. DRENDEL</u> Frank M. Drendel	Director and Chairman Emeritus	February 16, 2021
<u>/s/ STEPHEN C. GRAY</u> Stephen C. Gray	Director	February 16, 2021
<u>/s/ L. WILLIAM KRAUSE</u> L. William Krause	Director	February 16, 2021
<u>/s/ JOANNE M. MAGUIRE</u> Joanne M. Maguire	Director	February 16, 2021
<u>/s/ THOMAS J. MANNING</u> Thomas J. Manning	Director	February 16, 2021
<u>/s/ PATRICK R. MCCARTER</u> Patrick R. McCarter	Director	February 16, 2021
<u>/s/ TIMOTHY T. YATES</u> Timothy T. Yates	Director	February 16, 2021

Subsidiaries of the Registrant

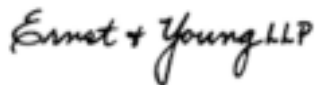
CommScope, Inc.	Delaware (USA)
CommScope, Inc. of North Carolina	North Carolina (USA)
CommScope Technologies LLC	Delaware (USA)
CommScope Connectivity LLC	Minnesota (USA)
CommScope EMEA Ltd	Ireland
ARRIS US Holdings, Inc.	Delaware (USA)
Ruckus Wireless, Inc.	Delaware (USA)
ARRIS Solutions, Inc.	Delaware (USA)
ARRIS Technology, Inc.	Delaware (USA)
ARRIS Enterprises LLC	Delaware (USA)
ARRIS Global Services, Inc.	Delaware (USA)
CommScope UK Holdings Ltd	United Kingdom
ARRIS International Ltd	United Kingdom
ARRIS Global Ltd	United Kingdom
ARRIS International IP Ltd	United Kingdom

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-3 No. 333-202490) and related Prospectus of CommScope Holding Company, Inc.;
- (2) Registration Statement (Form S-3ASR No. 333-230826) and related Prospectus of CommScope Holding Company, Inc.;
- (3) Registration Statement (Form S-8 No. 333-191959) pertaining to the CommScope Holding Company, Inc. 2013 Long-Term Incentive Plan, the Amended and Restated CommScope Holding Company, Inc. 2011 Incentive Plan, the Amended and Restated CommScope, Inc. 2006 Long-Term Incentive Plan, the Amended and Restated CommScope, Inc. 1997 Long-Term Incentive Plan, the Andrew Corporation Management Incentive Program, and the Options Granted to Non-Employee Directors Outside of a Plan;
- (4) Registration Statement (Form S-8 No. 333-230720) pertaining to the ARRIS International plc 2016 Stock Incentive Plan;
- (5) Registration Statement (Form S-8 No. 333-232354) pertaining to the CommScope Holding Company, Inc. 2019 Long-Term Incentive Plan;
- (6) Registration Statement (Form S-8 No. 333-238716) pertaining to the CommScope Holding Company, Inc. Amended and Restated 2019 Long-Term Incentive Plan; and
- (7) Registration Statement (Form S-8 No. 333-249204) pertaining to the Restricted Stock Units and Performance Share Units Granted as Employment Inducement Awards Outside of a Plan

of our reports dated February 16, 2021, with respect to the consolidated financial statements of CommScope Holding Company, Inc. and the effectiveness of internal control over financial reporting of CommScope Holding Company, Inc. included in this Annual Report (Form 10-K) of CommScope Holding Company, Inc. for the year ended December 31, 2020.



Charlotte, North Carolina
February 16, 2021

MANAGEMENT CERTIFICATION

I, Charles L. Treadway, certify that:

1. I have reviewed this annual report on Form 10-K of CommScope Holding Company, Inc.;
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 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 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.

Dated: February 16, 2021

/s/ Charles L. Treadway

Name: Charles L. Treadway

Title: President, Chief Executive Officer and
Director (Principal Executive Officer)

MANAGEMENT CERTIFICATION

I, Alexander W. Pease, certify that:

1. I have reviewed this annual report on Form 10-K of CommScope Holding Company, Inc.;
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 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 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.

Dated: February 16, 2021

/s/ Alexander W. Pease

Name: Alexander W. Pease

Title: Executive Vice President and Chief
Financial Officer (Principal Financial
Officer)

**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 CommScope Holding Company, Inc. (the “Company”) on Form 10-K for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Charles L. Treadway, President, Chief Executive Officer and Director of the Company, and Alexander W. Pease, Executive Vice President and Chief Financial Officer of the Company, 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 results of operations of the Company.

Dated: February 16, 2021

/s/ Charles L. Treadway
Charles L. Treadway
President, Chief Executive Officer and Director
(Principal Executive Officer)

/s/ Alexander W. Pease
Alexander W. Pease
Executive Vice President and Chief Financial
Officer
(Principal Financial Officer)

Board of directors

Claudius (Bud) E. Watts IV

Chairman, CommScope
Private Investor and Founding Partner
Meeting Street Capital, LLC

Charles L. Treadway^{1 2}

President and Chief Executive Officer,
CommScope

Austin A. Adams

Audit Committee Member
Former Corporate CIO, JP Morgan Chase

Mary S. Chan

Compensation Committee Member
Managing Partner, VectoIQ, LLC

Frank M. Drendel

Founder & Chairman Emeritus,
CommScope

Stephen (Steve) C. Gray

Chair of Compensation Committee
Founder and Chairman of Gray Venture
Partners, LLC

L. William (Bill) Krause

Compensation Committee Member,
and Nominating and Corporate Governance
Committee Member, Former Chairman &
CEO of 3Com Corporation

Joanne M. Maguire

Chair of Nominating and Corporate
Governance Committee, Former EVP,
Lockheed Martin Corporation

Thomas J. Manning

Audit Committee Member
Former Chairman and Chief Executive
Officer, Dun & Bradstreet

Patrick R. McCarter

Compensation Committee Member, and
Nominating and Corporate Governance
Committee Member, Managing Director
and Head of the Global Technology,
Media and Telecommunications Group,
The Carlyle Group

Derrick A. Roman

Audit Committee Member
Former Partner,
PricewaterhouseCoopers LLP

Timothy T. Yates

Lead Independent Director
Chair of Audit Committee
Former President and Chief Executive
Officer, Monster Worldwide, Inc.

Management team

Charles L. Treadway^{1 2}

President and Chief Executive Officer

Alexander W. Pease^{1 2}

Executive Vice President and
Chief Financial Officer

Morgan C. S. Kurk¹

Executive Vice President,
Chief Technology Officer and Segment
Leader, Broadband Networks

John R. Carlson¹

Senior Vice President and
Chief Commercial Officer

Frank (Burk) B. Wyatt, II^{1 2}

Senior Vice President, Chief Legal Officer/
General Counsel, & Secretary

Robyn T. Mingle^{1 2}

Senior Vice President and
Chief Human Resources Officer

Brooke B. Clark¹

Senior Vice President and
Chief Accounting Officer

Suzan M. Campbell

Senior Vice President, Global Tax

Ben Cardwell

Senior Vice President, Segment Leader,
Venue and Campus Networks

Joe Chow

Senior Vice President, Segment Leader,
Home Networks

Farid Firouzbakht

Senior Vice President, Segment Leader,
Outdoor Wireless Networks

Praveen Jonnala

Senior Vice President and
Chief Information Officer

Boris Kokotovic

Senior Vice President, Global Quality

Kyle Lorentzen

Senior Vice President and
Chief Transformation Officer

Gordon Robb²

Senior Vice President, Global Supply Chain

1 Section 16 Officers

2 Ethics, Compliance & Sustainability Executive Council Members

Investor information

Annual meeting

Friday, May 7, 2021, 1:00 p.m. ET
Virtual at ir.commscope.com

Corporate headquarters

CommScope Holding Company, Inc.
1100 CommScope Place, SE
Hickory, NC 28602
www.commscope.com
+1 828.324.2200
800.982.1708 (U.S. only)

Transfer agent and registrar

American Stock Transfer
& Trust Company, LLC
Shareholder Services Department
6201 15th Avenue
Brooklyn, NY 11219
help@astfinancial.com
+1 718.921.8124
800.937.5449 (U.S. only)
www.astfinancial.com

Investor relations

Russell Johnson

VP, Treasurer & Investor Relations
+1 828.431.2597

Michael (Mick) McCloskey

Manager, Investor Relations
+1 828 431 9874

Common stock

Trades on NASDAQ under
the symbol "COMM"



**A copy of the Company's 2020
Annual Report on Form 10-K for the
fiscal year ended December 31, 2020,
may be obtained, free of charge,
by any shareholder by writing to
CommScope Holding Company, Inc.,
1100 CommScope Place, SE, Hickory,
NC 28602, Attention: Investor
Relations. Our Annual Report on
Form 10-K is also available and may
be accessed free of charge through
the Investor Relations section
of our Internet website at
ir.commscope.com.**



COMMScope®

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® or ™ are registered trademarks or trademarks,
respectively, of CommScope, Inc.