
**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 0-28082

KVH Industries, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

05-0420589

(I.R.S. Employer Identification Number)

50 Enterprise Center, Middletown, RI 02842

(Address of Principal Executive Offices) (Zip Code)

(401) 847-3327

(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock, \$0.01 par value per share	KVHI	(Nasdaq Global Select Market) The NASDAQ Stock Market LLC

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. **Yes** **No**

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 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 for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. **Yes** **No**

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T 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
Non-accelerated filer

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. **0**

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 Rule 12b-2 of the Exchange Act). **Yes** **No**

As of June 30, 2020, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was \$144,621,573 based on the closing sale price of \$8.93 per share as reported on the Nasdaq Global Select Market. Shares of common stock held by executive officers and directors of the registrant and their affiliates have been excluded from this calculation because such persons may be deemed affiliates. As of February 22, 2021, the registrant had 18,429,840 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement relating to its 2021 Annual Meeting of Stockholders are incorporated herein by reference in Part III.

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PART I

ITEM 1. Business

Cautionary Statement Regarding Forward-Looking Information

In addition to historical facts, this annual report contains forward-looking statements. Forward-looking statements are merely our current predictions of future events. These statements are inherently uncertain, and actual events could differ materially from our predictions. Important factors that could cause actual events to vary from our predictions include those discussed in this annual report under the headings “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Item 1A. Risk Factors.” We assume no obligation to update our forward-looking statements to reflect new information or developments. We urge readers to review carefully the risk factors described in this annual report and in the other documents that we file with the Securities and Exchange Commission.

Additional Information Available

Our principal Internet address is www.kvh.com. Our website provides a hyperlink to a third-party website through which our annual, quarterly, and current reports, as well as amendments to those reports, are available free of charge. We believe these reports are made available as soon as reasonably practicable after we electronically file them with, or furnish them to, the SEC. We do not provide any information regarding our SEC filings directly to the third-party website, and we do not check its accuracy or completeness. The SEC maintains an Internet site at <http://www.sec.gov> that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Introduction

We are a leading provider of innovative, technology-driven connectivity and navigation solutions to maritime, marine, defense and other commercial customers globally. Through our mobile connectivity business, we provide global high-speed Internet, television, and voice services via satellite to mobile users at sea and on land. We are also a leading provider of commercially licensed entertainment, including news, sports, music, and movies, to commercial and leisure customers in the maritime, hotel, and retail markets. Our inertial navigation business provides high-performance navigational sensors and integrated inertial systems for defense and commercial inertial navigation applications. Our reporting segments are as follows:

- the mobile connectivity segment and
- the inertial navigation segment

Through these segments, we manufacture and sell our solutions in a number of major geographic areas, including internationally. We generate revenues from various international locations, primarily consisting of Canada, Europe (both inside and outside the European Union), Africa, Asia/Pacific, and the Middle East.

During the second quarter of 2019, we sold Videotel, which provided eLearning computer-based training, to an affiliate of Oakley Capital. We determined that the sale met the requirements for reporting as discontinued operations in accordance with Financial Accounting Standards Board Accounting Standards Codification (ASC) 205-20 *Presentation of Financial Statements — Discontinued Operations* (ASC 205-20). Accordingly, we have classified the results of the Videotel business as discontinued operations in our financial statements.

We are headquartered in Middletown, Rhode Island, with active operations in Denmark, the State of Illinois, Norway, Singapore, and the United Kingdom. KVH is a Delaware corporation formed in 1985.

Our Business Segments

Segment	Primary Products	Major Brands	2020 Net Sales ⁽¹⁾
Mobile connectivity	Satellite television and internet solutions and media and content delivery solutions	TracVision® TracPhone® CommBox™ Mini-VSAT Broadband™ IP-MobileCast™ KVH OneCare™ NEWSLink™ AgilePlans™	\$ 119,453
Inertial navigation	Digital compass and fiber optic gyro-based navigation and guidance systems	TACNAV®	39,280
		Total	\$ 158,733

(1) Amounts in thousands

Mobile Connectivity Segment

Through our mobile connectivity segment, we provide integrated, end-to-end hardware, software and services that support our customers' need for access to Internet, voice and entertainment services. On the hardware side of this business, we primarily manufacture and distribute a comprehensive family of mobile satellite antenna products and services that provide access to the Internet and voice services while on the move. Product sales within the mobile connectivity segment accounted for 18% and 20% of our consolidated net sales for 2020 and 2019, respectively. Sales of mini-VSAT Broadband airtime service accounted for 51% and 48% of our consolidated net sales for 2020 and 2019, respectively. Sales of content services within the mobile connectivity segment accounted for 5% and 6% of our consolidated net sales for 2020 and 2019, respectively.

In the global maritime market, we believe that there is significant demand for mobile access to television, the Internet, voice services, entertainment content, and operational services such as navigation chart updates, weather services, and voyage optimization. For both maritime and onshore customers that want to access live television while on the move, we offer a comprehensive family of mobile satellite antenna products marketed under the TracVision brand. For access to the Internet and voice services while on the move, which we refer to collectively as our airtime services, we offer a family of mobile satellite antenna products and communication services marketed under the brands mini-VSAT Broadband and TracPhone, respectively. The network infrastructure that we have developed to support our airtime services also supports the delivery of other value-added services such as our IP-MobileCast content delivery service for both entertainment and operational needs.

Our mobile satellite antenna products use sophisticated robotics, stabilization and control software, sensing technologies, transceiver integration, and advanced antenna designs to automatically search for, identify and point directly at the selected television and communications satellite while the vehicle or vessel is in motion. Our antennas use gyros and inclinometers to measure the pitch, roll and yaw of an antenna platform in relation to the earth. Microprocessors and our proprietary stabilization and control software use that data to compute the antenna movement necessary for the antenna's motors to point the antenna properly and maintain contact with the satellite. If an obstruction temporarily blocks the satellite signal, our products continue to track the satellite's location according to the movement of the antenna platform in order to carry out automatic, rapid reacquisition of the signal when a direct line of sight to the satellite is restored.

Our Certified Support Network offers our TracVision and TracPhone customers an international network of skilled technical dealers and support centers in many locations where our customers are likely to travel. We have selected technical dealers based on their technical expertise, professionalism, and commitment to quality, and regularly provide them with extensive training in the sale, installation and support of our products.

Maritime

In the marine market, we offer a range of mobile satellite TV, internet access, and communications products.

Satellite Internet and Phone. Our mini-VSAT Broadband network offers an end-to-end solution for offshore mobile connectivity. This unified C/Ku-band Broadband service enables us to offer commercial, leisure, and government customers an integrated hardware and service solution for mobile communications and seamless region-to-region roaming. We design and manufacture the onboard TracPhone terminals, own hub equipment installed in leased earth stations, lease the satellite capacity, manage the network through third-party service providers, and provide 24/7/365 after-sale support. Because we manufacture the onboard hardware, we can integrate the full rack of discrete below decks equipment typically used on traditional VSAT systems into a single, streamlined unit that is significantly easier to deploy than competing VSAT solutions. Our mini-VSAT Broadband network utilizes advanced next-generation high-throughput satellites (HTS) capabilities offered by Intelsat and SKY Perfect JSAT, as well as ArcLight spread spectrum modem technology developed by ViaSat.

Our approach allowed us to develop and bring to market our TracPhone V series of terminals. Our 60-cm diameter TracPhone V7-HTS Ku-band antenna is 85% smaller by volume and 75% lighter than alternative 1-meter diameter VSAT antennas and is designed to deliver faster data speeds globally to the maritime market. We are able to offer download/upload speeds as fast as 10 megabits per second (Mbps)/3 Mbps.

In October 2018, we introduced our 37-cm diameter TracPhone V3-HTS Ku-band antenna, which is practical for use on smaller vessels as well as land vehicles. We believe that the TracPhone V3-HTS is the world's fastest, lightest, ultra-compact Ku-band marine VSAT antenna. Weighing 11 kg (25 lbs.), the TracPhone V3-HTS is smaller than any other Ku-band marine satellite communications antenna currently on the market and is designed to provide faster data speeds (5 Mbps download/2 Mbps upload) than some larger marine satellite antennas.

In March 2019, we introduced the TracPhone V11-HTS, which we believe is the world's fastest 1 meter KU/C-band maritime VSAT antenna, designed to deliver data speeds as fast as 20 Mbps download/3 Mbps upload to commercial maritime vessels and superyachts around the world. The fast data speeds support the critical needs of commercial ships today for operations, Internet of Things (IoT) applications, and crew connectivity. Superyacht guests can now enjoy fast connectivity for streaming HD content and accessing Internet and social media platforms at sea.

LTE Broadband. In June 2018, we introduced the TracPhone LTE-1, which is a high-gain dual antenna array, modem, GPS, and Wi-Fi router inside a 34-cm diameter dome. The TracPhone LTE-1 uses cellular technology from two of the leading LTE carriers in the U.S., automatically switching between them to provide Internet access in U.S. waters up to approximately 20 miles offshore, with data download speeds up to 100 Mbps.

VSAT Deployments. We are actively engaged in sales efforts for the TracPhone HTS Series and mini-VSAT Broadband service to government agencies for maritime, military, and emergency responder use. We also continue to expand our ability to support the commercial maritime market. For example, in December 2018, we completed the deployment of 45 TracPhone V7-HTS systems on Transpetro oil and gas tankers.

Other Marine Solutions. We offer CommBox, a ship-to-shore network management product that comprises shipboard hardware, a KVH-hosted or privately-owned shore-based hub, and a suite of software applications. Our CommBox offerings are generally integrated into all of our VSAT product offerings. We do not generate significant revenue from sales of standalone CommBox hardware.

We also offer Iridium OpenPort hardware and service to be used in conjunction with our mini-VSAT service. Iridium OpenPort service provides data rates up to 128 kilobits per second (Kbps) and covers the entire world, including the polar regions. We offer the Iridium hardware and service along with our own mini-VSAT solution with the integrated CommBox functionality, which will switch over to the Iridium service if the mini-VSAT service is not available. Our customers might choose to add the Iridium service to expand the geographic coverage of the system or as a backup service.

In September 2019, we started offering Iridium Certus, a next-generation L-band solution providing pole-to-pole global coverage. As a companion to our VSAT systems, the Iridium Certus 38-cm diameter Cobham Sailor 4300 antenna provides L-band data speeds of 704 Kbps download/176 Kbps upload. Optional routing enables onboard data to switch between our mini-VSAT Broadband service and Iridium Certus.

In addition to our TracPhone VSAT products and mini-VSAT Broadband service, we also offer a family of Inmarsat-compatible TracPhone products that provide in-motion access to global satellite communications. These products rely on services offered by Inmarsat, a satellite service provider that supports links for phone, fax, and data communications as fast as 432 Kbps. The TracPhone FB250, FB500, and FleetOne antennas use the Inmarsat FleetBroadband service to offer voice and Internet service. The TracPhone FB250, FB500 and FleetOne products are manufactured by Cobham and distributed on an OEM basis by us in North America under our TracPhone brand and distributed in other markets on a non-exclusive basis.

Unlike mini-VSAT Broadband, where we control and sell the airtime, we purchase Inmarsat and Iridium airtime directly from these companies and resell it to our customers.

Satellite TV. Our TracVision TV-series satellite TV antennas are designed with the full spectrum of vessel sizes in mind, ranging from recreational vessels as small as 20 to 25 feet to large commercial vessels. The TV-series incorporate an Internet Protocol (IP)-enabled control unit to allow access to system information from any Wi-Fi device. Our family of marine TracVision products includes the 32-cm diameter TracVision TV1, 37-cm diameter TracVision TV3, 45-cm diameter TracVision TV5, 60-cm diameter TracVision TV6, and 81-cm TracVision TV8. These products are compatible with Ku-band SDTV and HDTV programming as well as high-powered regional satellite TV services around the globe, based on available signal strength and antenna size requirements.

Our TracVision HD-series satellite TV antennas are designed to offer a high-definition TV experience comparable to that available to a home DIRECTV HDTV subscriber. Our TracVision HD7 uses a 60-cm diameter satellite TV antenna to receive signals from two DIRECTV Ka-band satellites and one DIRECTV Ku-band satellite simultaneously. It includes an IP-enabled antenna control unit as well as an optional antenna control unit via a free TracVision application for use on an Apple iPhone or iPad. We believe the TracVision HD7 was the first marine antenna to offer this combination of capabilities. Our TracVision HD11 offers a worldwide satellite TV capability through the use of a 1-meter diameter antenna and a global low noise block (LNB) designed for use with the majority of direct-to-home satellite TV services. As a result, it is able to receive all Ku-band and DIRECTV Ka-band satellite television signals without changing hardware elements. The Ku-band also works with modern satellite television services currently available throughout the world. The Ka-band receives DIRECTV HDTV. Like the TracVision HD7, the TracVision HD11 features an optional application for the Apple iPhone or iPad to provide easy control of the system.

In October 2019, we launched the TracVision UHD7, a high-performance 60 cm (24 inch) marine satellite TV antenna designed to provide boat owners, charter yacht guests, and commercial vessel crews with access to ultra high-definition (UHD) and 4K programming from DIRECTV as well as regular HD programming from other leading satellite TV providers.

In August 2020, we launched the TracVision TV10, a 1 meter ultrahigh efficiency marine satellite TV antenna designed to provide the biggest coverage footprint in our TracVision series and to provide boat owners, charter yacht guests, and commercial vessel crews with access to live news, local channels, and TV and movie programming from leading satellite TV providers worldwide.

Land Mobile

We design, manufacture, and sell a range of TracVision satellite TV antenna systems for use on a broad array of vehicles, including recreational vehicles (RV), buses, conversion vans, and automobiles.

In the RV and bus markets, we offer TracVision satellite TV products, intended for both stationary and in-motion use. Our TracVision R1 delivers DIRECTV or DISH network service through a small 32-cm diameter dome. Our TracVision A9 uses hybrid phased-array antenna technology to provide in-motion reception of satellite TV programming in the continental United States using either the DIRECTV or DISH Network services. The TracVision A9 stands approximately five inches high and mounts either to a vehicle's roof rack or directly to the vehicle's roof, making it practical for use aboard minivans, SUVs and other passenger vehicles. The TracVision A9 includes a mobile satellite television antenna and an IP-enabled TV hub for easy system configuration and control via Wi-Fi devices, such as an Apple iPhone or iPad. The TracVision A9 is also suitable for tall motor coaches and buses. Automotive customers subscribe to DIRECTV's TOTAL CHOICE MOBILE satellite TV programming package, which is specifically promoted for automotive applications, or to DISH Network programming.

Airtime Services

In addition to our mobile satellite antenna hardware and software, we offer airtime plans that enable customers to obtain Internet and voice services. We offer a variety of rate plans that are flexible to meet the customer's needs. The key features of the mini-VSAT Broadband service are usage-based airtime plans, a network management portal and a comprehensive global customer support program. Our usage-based plans are designed around each vessel's monthly data requirements for operational and crew needs. Our network management portal, myKVH, is a secure portal that enables a ship operator to manage network usage by vessel or by individual crew members by allocating operational and crew data caps while receiving customized usage alerts. For customers that want the certainty of a fixed monthly price, we offer fixed rate plans that vary depending on data speeds and include protocol restrictions, such as limiting streaming of video content. User speeds are also restricted but not stopped when users reach established data use thresholds. In addition, we offer multiple usage plans that are either billed monthly based on the data consumed without any application or protocol blocking or based on a monthly minimum data quota with the option to add more data for an incremental charge.

AgilePlans, one of our mini-VSAT Broadband services for commercial maritime customers, offers an all-inclusive Connectivity as a Service, or CaaS, usage-based pricing model. Under this all-in-one CaaS model, we charge subscribers a single monthly fee in exchange for which we provide satellite communication hardware, shipping and installation, maintenance and support, airtime and voice services, a service management portal and certain basic content services with no minimum commitment and no long-term contracts required. We offer AgilePlan customers a variety of airtime data plans with varying data allotments and fixed data usage levels with our exclusive dual-channel configuration with hybrid airtime plans delivering both a high-speed channel and an unlimited use data channel. Under our CaaS model, we retain ownership of our satellite equipment and do not sell it to subscribers, who must return the hardware to us if they terminate our service. We expect that, as customers subscribe to our AgilePlans service, our revenues from product sales will continue to decline, and our provision of this equipment to subscribers will continue to increase our capital expenditures, which over time will continue to increase our costs of service sales as we depreciate these assets.

In June 2019, we launched KVH Watch®, our all-inclusive, no-commitment, Internet of Things (IoT) Connectivity as a Service program for the maritime industry utilizing global mini-VSAT communications. Through our KVH Watch service, we provide a connectivity solution for remote equipment monitoring and intervention by maritime equipment manufacturers and IoT application providers. With remote monitoring, manufacturers can more easily act in real time, reducing expensive service calls and improving equipment performance for the maritime operation.

In October 2017, we launched our next-generation, advanced maritime broadband network with Intelsat. The HTS high-speed network complements our first-generation mini-VSAT Broadband network with three to six times the data speeds available to maritime customers. Our advanced maritime broadband network incorporates Intelsat Epic satellite services and the IntelsatOne Flex platform, a global managed service designed to optimize bandwidth allocations and provide flexible coverage where it is needed. Our mini-VSAT Broadband network also benefits from Asian satellite capacity provided by SKY Perfect JSAT. Overall, our mini-VSAT Broadband HTS network currently uses a combination of 156 Ku-band transponders (five of which we directly contract for) on 17 satellites to provide Ku-band coverage throughout the northern and southern hemispheres. Three of the 17 satellites are considered high-throughput satellites that provide coverage via overlapping high-powered spot beams. Eighty-eight of the 156 Ku-band transponders are served by the high-throughput satellites. During the first quarter of 2018, we entered into a five-year capital lease for three satellite hubs for the HTS network. It is our long-term plan to continue to maintain and enhance our mini-VSAT Broadband network.

Our legacy mini-VSAT Broadband network currently uses a combination of 20 Ku-band transponders on 15 satellites to provide Ku-band coverage throughout the northern hemisphere and around the continents in the southern hemisphere. Of the 20 Ku-band transponders, we directly contract with seven of them as of January 1, 2021. The remaining Ku-band transponders are contracted by ViaSat. Under the terms of our revenue-sharing arrangement with ViaSat, we may earn revenue from maritime, land-based and aeronautical use of the network. In November 2018, we renewed our contract with ViaSat until the end of 2021. The new contract includes an obligation to make certain minimum quarterly payments to ViaSat that decline over the contract period. After this contract period, the agreement terminates. As part of the agreement, starting January 1, 2019, we reduced the number of Ku-band transponders for which we directly contract for from fourteen to eight. In 2020, we reduced the number of Ku-band transponders from eight to seven, and we removed the C-band coverage from the legacy mini-VSAT Broadband network.

The bandwidth speeds offered by the Ku-band satellites also permit faster data rates than those supported by Inmarsat's L-band satellites. TracPhone V11-HTS customers may select service packages with Internet data connections offering shore-to-ship satellite data rates as fast as 20 Mbps, and ship-to-shore satellite data rates as fast as 3 Mbps. The V7-HTS offers shore-to-ship satellite data rates as fast as 10 Mbps and ship-to-shore data rates as fast as 3 Mbps. The TracPhone V3-HTS, due to its smaller dish diameter, offers shore-to-ship satellite data rates as fast as 5 Mbps and ship-to-shore data rates as fast as 2 Mbps. In addition, subscriptions include Voice over Internet Protocol (VoIP) telephone services designed for use over satellite connections. The TracPhone V11-HTS and V7-HTS can support two or more simultaneous calls while the TracPhone V3-HTS can support one call at a time.

In addition, we offer professional services for our VSAT products that include network design, installation of onboard TracPhone terminals and custom configuration of the CommBox based on customer requirements. These services are performed by our employees as well as a dealer network of certified engineers.

Sale of Videotel - Discontinued Operations

On May 13, 2019, we sold all of the issued share capital of Super Dragon Limited and Videotel Marine Asia Limited (together referred to as Videotel) for \$89.4 million in cash, on a cash-free, debt-free basis, subject to a working capital adjustment. Videotel comprised our maritime training business, which offered video, animation, eLearning computer-based training and interactive distance learning services to the maritime industry. The sale was completed immediately upon execution of definitive agreements. In December 2019, we finalized the working capital adjustment, which reduced the proceeds from the sale of Videotel to \$88.4 million. Please see Notes 1 and 18 of our accompanying financial statements for further information.

Content Services

As part of our mobile connectivity segment, we offer a variety of value-added services to our maritime customers as well as news content to our hotel customers and radio content to a small number of retail customers. The vast majority of these value-added services are subscription-based.

Our KVH Media Group, which is based in the United Kingdom, distributes commercially licensed entertainment, including news, sports, music, and movies, to commercial and leisure customers in the maritime, hotel, and retail markets. Sales from KVH Media Group are included in our mobile connectivity service sales as part of content service sales. Our "news from home" digital newspaper service includes more than 100 daily newspapers in more than 20 languages that at the end of 2020 was delivered to more than 8,000 commercial ships, hotels, and cruise ships. The digital content can be printed onboard or viewed on a tablet, smartphone, or laptop. For movie and television content, we are an approved distributor of licensed content for certain Hollywood, Bollywood, and independent studios worldwide.

In January 2020, we decided to rebrand IP-MobileCast to KVH Link. We offer a content subscription service called KVH Link, delivered by IP-MobileCast wherein content and data files are transmitted using multicast technology across our global satellite networks to every vessel or mobile vehicle that has an active, compatible TracPhone V series, V-IP series, or V-HTS series terminal. This delivery mechanism reduces the amount of bandwidth required to transmit large files to a large population of customers. Before multicasting, large data files were generally transmitted across satellite networks "on demand" or unicast, which consumes significant bandwidth. The content is either stored on the terminal itself or on a KVH-supplied media server, which is required for digital rights managed content such as movies. Copyright law requires permission from the rights holder for exhibitions of copyrighted film and television. Historically, studios have granted KVH Media Group permission to license non-theatrical exhibitions aboard ships. While traditionally we licensed this content to commercial maritime customers primarily through the distribution of DVDs, we have now also automated the transmission of this type of entertainment via KVH Link.

Customers that subscribe to one of our entertainment packages generally receive a variety of movie and television content that is cached locally onboard. We transmit local "news from home" and international news segments in a variety of languages on a daily, weekly or monthly basis, a library of movies plus daily sports, news clips and special programming such as the highlights of sporting events.

The COVID-19 pandemic has impacted various aspects of our operations, particularly the KVH Media Group, which depends heavily on travel and travel-related industries. The revenues and cash flows of our KVH Media Group business have been significantly impacted due to the global reduction in travel since the start of the pandemic. In the fourth quarter of 2020, there were increases in the number of reported COVID-19 cases, and substantial shutdowns were reinstated in the United States, UK and Europe, which caused continued disruptions to our KVH Media Group business as the global travel and travel-related industries remained at historically depressed levels. In the fourth quarter of 2020, we concluded that certain areas of the KVH Media business may not recover completely or at all. As a result of these changes in the KVH Media business, we recognized an intangible asset impairment charge of \$1.8 million and a goodwill impairment charge of \$8.7 million for the year ended December 31, 2020 related to KVH Media Group. Please see Note 1(k) for additional information.

Inertial Navigation Segment

We offer a portfolio of innovative digital compass and fiber optic gyro (FOG)-based systems that address the rigorous requirements for precision, performance and stability of military and commercial customers. Our systems provide reliable, easy-to-use and continuously available navigation and pointing data. Our guidance and stabilization products include our FOG-based inertial measurement units (IMUs) for precision guidance, FOGs for tactical navigation as well as pointing and stabilization systems, and digital compasses that provide accurate heading information for demanding applications. Sales of FOG-based guidance and navigation systems within the inertial navigation segment accounted for 16% of our consolidated net sales for both 2020 and 2019. Sales of tactical guidance and navigation systems within the inertial navigation segment accounted for 7% and 3% of our consolidated net sales for 2020 and 2019, respectively.

Guidance and Stabilization

Our high-performance digital signal processing (DSP)-based FOG products use an all-fiber design that has no moving parts, resulting in an affordable combination of precision, accuracy, and durability. Our FOG products support a broad range of military applications, including stabilization of remote weapons stations, antennas, radar, optical devices, or turrets; image stabilization and synchronization for shoulder-or tripod-mounted weapon simulators; precision tactical navigation systems for military vehicles, and guidance for weapons and unmanned autonomous vehicles. Our FOG products are also used in numerous commercial products, such as navigation and positioning systems for various applications including precision mapping, dynamic surveying, autonomous vehicles, train location control and track geometry measurement systems, industrial robotics, and optical stabilization.

The CG-5100, our first commercial-grade IMU, is suitable for a wide range of applications such as 3D augmented reality, mobile mapping, platform navigation, and GPS augmentation for unmanned vehicle programs, precise mapping, and imagery.

Our open-loop DSP-1750, DSP-3000, and DSP-4000 FOGs provide precision measurement of the rate and angle of a platform's turning motion for significantly less cost than competing closed-loop gyros. These DSP-based products deliver performance superior to analog signal processing devices, which experience greater temperature-sensitive drift and rotation errors. Applications for these products include inertial measurement units, integrated navigation systems, attitude/heading/reference systems, and stabilization of antenna, radar, and optical equipment.

The DSP-1750, which we believe to be the world's smallest high-performance FOG, uses our E-Core™ ThinFiber technology. This thin fiber, which is produced at our Tinley Park, Illinois manufacturing facility, is only 170 microns in diameter, enabling longer lengths of fiber to be wound into smaller housings. Since the length of the fiber used in a FOG directly relates to gyro accuracy and performance, this technology enables us to produce smaller and more accurate gyros. The small size and weight of the DSP-1750 make it well suited for applications with size and weight restrictions, such as night vision and thermal imaging systems, aircraft-mounted gimbaled cameras for law enforcement and homeland security, and shipboard optical systems.

Our DSP-1760 single-axis and multi-axis FOGs offer improved performance and ease of integration relative to the DSP-1750. Many customers using our DSP-1750 single-axis and dual-axis FOGs also had requirements for packaged DSP-1750s. To address this demand, we introduced the DSP-1760 product line, consisting of packaged one, two, or three axes of FOGs, each with two different interface connector options.

The DSP-3000, DSP-3100, and DSP-3400 are each slightly larger than a deck of playing cards and offers a variety of interface options to support a range of applications. High-performance 2-axis and 3-axis configurations can be realized by integrating multiple DSP-3000 and DSP-3100 units. Currently, the DSP-3000, DSP-3100, and DSP-3400 are used in an array of pointing and stabilization applications, including the U.S. Army's Common Remotely Operated Weapon Station (CROWS) to provide the image and gun stabilization necessary to ensure that the weapon remains aimed at its target. We estimate that more than 20 companies have developed or are developing stabilized remote weapons stations that we believe will require similar FOG stabilization capabilities. The larger, militarized dual axis DSP-4000 is designed for use in high-shock and highly dynamic environments, such as gun turret stabilization.

Our 1750 IMU is an advanced 6-degrees-of-freedom sensor designed to integrate easily into the most demanding stabilization, pointing, and navigation applications. It offers enhanced performance at a lower cost than competing systems. The 1750 IMU marries the E-Core ThinFiber technology of our DSP-1750 FOGs with very low noise, solid state MEMS accelerometers to create a commercial-off-the-shelf IMU. Our 1775 IMU and 1725 IMU products complement the 1750 IMU and provide customers with a range of choices for advanced 6-degrees-of-freedom sensors. The family of IMUs offers exceptional precision in a very small form factor, making them suitable for applications where space is limited, such as manned and unmanned commercial and defense platforms, optical equipment stabilization systems, pipeline inspection equipment, and autonomous vehicle control and navigation systems.

Our GEO-FOG 3D and GEO-FOG 3D Dual inertial navigation systems offer roll, pitch and heading accuracies of 0.05 degrees for demanding applications in unmanned, autonomous and manned aerial platforms. These systems combine our 1750 IMU technology with centimeter-level precise GNSS receivers, a 3-axis magnetometer and a barometric pressure sensor.

In June 2018, we introduced a version of the 1775 IMU that includes 25g accelerometers. This version is designed for applications with high levels of acceleration, vibration, or shock. These applications include positioning and navigation systems for drilling, mining, and pipeline inspection and maintenance; mobile mapping systems using multiple sensors such as radar, cameras, and LIDAR; high-speed gimbals; and manned and unmanned platform stabilization and navigation systems.

In June 2020, we introduced the P-1775 IMU featuring our new PIC Inside photonic integrated chip (PIC) technology. Our PIC Inside technology features an integrated planar optical chip that replaces individual fiber optic components to simplify production while maintaining or improving accuracy and performance. The PIC Inside product is designed to deliver 20 times higher accuracy than less expensive MEMS inertial measurement units, uses modular designs for ease of integration, and can be reliably manufactured at higher volumes than our traditional IMU products.

Tactical Navigation

Our TACNAV® tactical navigation product line employs digital compass sensors and KVH FOGs to offer vehicle-based navigation and pointing systems with a range of capabilities, including Global Positioning Systems / Global Navigation Satellite System (GPS/GNSS) backup and enhancement, vehicle position, hull azimuth and navigation displays. Because our digital compass products measure the earth's magnetic field rather than detect satellite signals from the GPS/GNSS, they are not susceptible to GPS/GNSS jamming devices.

TACNAV systems vary in size and complexity to suit a wide range of vehicles. Our TACNAV Light, including a version with embedded GPS/GNSS, is low-cost, digital compass-based battlefield navigation system specifically designed for non-turreted vehicles, such as high mobility multi-wheeled vehicles (HMMWVs) and trucks. Our TACNAV TLS, a digital compass-based tactical navigation and targeting system, offers a FOG upgrade for enhanced accuracy designed for turreted vehicles, including reconnaissance vehicles, armored personnel carriers, and light armored vehicles. Our TACNAV II Fiber Optic Gyro Navigation system offers a compact design, continuous output of heading and pointing data, and a flexible architecture that allows it to function as either a stand-alone navigation module or as the central component of an expanded, multifunctional navigation system. Our FOG-based TACNAV 3D product provides full three-dimensional navigation. The TACNAV 3D is fitted with an Iridium transceiver to transmit and receive vehicle position, waypoint, and target location to or from a command center or other vehicle. The system also allows messages to be received from battlefield management systems. The TACNAV Moving Map Display offers real-time moving map technology and an easy-to-use graphical navigation capability for military vehicles. It is compatible with existing and future TACNAV systems, provides a high-bright display for outdoor viewing, and dims to support low-light tactical operations.

Our navigation systems function as standalone tools and also aggregate, integrate, and communicate critical information from a variety of on-board systems. TACNAV can receive data from systems such as the vehicle's odometer, military and commercial GPS devices, laser rangefinders, turret angle indicators and laser warning systems. TACNAV can also output this data to an on-board computer for retransmission through the vehicle's communications systems to a digital battlefield management application.

Our TACNAV digital compass products have been sold for use aboard U.S. Army, Marine Corps, and Navy vehicles as well as to many foreign countries, including Australia, the United Kingdom, Canada, Germany, Italy, New Zealand, Saudi Arabia, Spain, Sweden, Taiwan, Malaysia, and Switzerland. We believe that we are among the leading manufacturers of such systems. Our standard TACNAV products can be customized to our customers' specifications. At customer request, we offer training and other services on a time-and-materials basis.

Value-Added Services

Our value-added services for the inertial navigation market include engineering and program management services, product repairs, and engineering services provided under development contracts.

Sales, Marketing and Support

Our sales, marketing and support efforts target markets that are substantial and complex, and require in many cases networks of intermediaries, such as dealers, distributors, airtime service providers, and manufacturers' representatives, to reach our ultimate customers. These sales channels vary and evolve from time to time, but currently include targeted efforts to reach the commercial and leisure maritime markets; the recreational vehicle (RV), high-end automotive and bus markets; and the commercial, industrial, and government markets. As our business evolves, we may pursue additional sales channels, including direct sales, in various markets. We believe our brands are well known and well respected by customers within their respective niches. These brands include:

- TracVision - satellite television systems for vessels and vehicles
- TracPhone - two-way satellite communications systems
- mini-VSAT Broadband - mobile satellite communications network and value-added services such as VoIP, data management, content and content delivery
- KVH Link - content delivery service by IP-Mobilecast
- NEWSlink - maritime news delivery service through a variety of means
- SPORTSlink - sporting content delivered through a variety of means
- TVlink - television programming delivered through a variety of means
- MOVIElink - movie distribution through a variety of means
- CommBox - data management software for maritime communications
- TACNAV - tactical navigation systems for military vehicles
- KVH OneCare - services and support for the mini-VSAT Broadband solution
- AgilePlans by KVH - Connectivity as a Service Program
- KVH Watch - IoT Connectivity as a Service
- KVH Elite - dedicated bandwidth for HD-quality streaming

We sell our mobile connectivity products directly and through an international network of independent retailers, chain stores, distributors, and service providers as well as to manufacturers of vessels, maritime equipment, and vehicles.

We sell news, sports, and entertainment media content directly through our KVH Media Group, headquartered in Leeds, England.

Our European headquarters, which is located in Denmark, coordinates our sales, marketing, and support efforts for our mobile connectivity products in Europe, the Middle East, and Africa. Our Asia-Pacific headquarters are managed through our office in Singapore.

We sell our inertial navigation products directly to U.S. and foreign governments and government contractors, as well as through an international network of authorized independent sales representatives. This network also sells our FOG products to commercial and industrial customers.

Backlog

Backlog is not a meaningful indicator for predicting revenue in future periods. Commercial resellers for our mobile connectivity products and legacy products typically do not carry extensive inventories and rely on us to ship products quickly. Generally, due to the rapid delivery of our commercial products, our backlog for those products is not significant.

Our backlog for all products and services was \$20.4 million and \$19.5 million on December 31, 2020 and 2019, respectively. As of December 31, 2020, \$19.8 million of our backlog was scheduled for fulfillment in 2021 and \$0.6 million was scheduled for fulfillment in 2022 through 2024. The increase in backlog of \$0.9 million from December 31, 2019 to December 31, 2020 was primarily the result of a \$4.5 million increase in TACNAV product orders and \$0.3 million in contracted engineering services, partially offset by a \$3.2 million decrease in FOG product orders and a \$0.5 million decrease in mobile connectivity product orders.

Backlog consists of orders evidenced by written agreements and specified delivery dates for customers who are acceptable credit risks. We do not include satellite connectivity or media content service sales in our backlog even though many of our satellite connectivity and media content customers have signed annual or multi-year service contracts providing for a fixed monthly fee. Military orders included in backlog are generally subject to cancellation for the convenience of the customer. When orders are canceled, we generally recover actual costs incurred through the date of cancellation and the costs resulting from termination. As of December 31, 2020, our backlog included \$3.0 million in orders that are subject to cancellation for convenience by the customer. Individual orders for inertial navigation products are often large and may require procurement of specialized long-lead components and allocation of manufacturing resources. The complexity of planning and executing larger orders generally requires customers to order well in advance of the required delivery date, resulting in backlog.

Intellectual Property

We currently hold a collection of intellectual property rights relating to various aspects of our inertial navigation and mobile connectivity hardware products, software and services. We believe that our ability to compete effectively depends to a significant extent on our ability to protect these intellectual property rights and our proprietary information. We rely primarily on patent, copyright and trade secret laws, trademarks, service marks, trade dress, confidentiality procedures, and licensing arrangements to protect our intellectual property rights in the U.S. and other countries where we determine that such protection is beneficial. When appropriate, we seek to file patent applications to protect innovations arising from our research, development and design activities, and we are currently pursuing 37 U.S. and foreign patent applications. Over time, we have accumulated a portfolio of 30 U.S. and foreign issued patents, including utility patents, design patents and others. We also register our trademarks in the United States and other key international markets where we do business. Our patents will expire at various dates between August 2021 and March 2038. We enter into confidentiality agreements with our consultants, key employees, and sales representatives and maintain controls over access to and distribution of our technology, software, and other proprietary information. The steps we have taken to protect our technology may be inadequate to prevent others from using what we regard as our technology to compete with us.

We do not generally conduct exhaustive patent searches to determine whether the technology used in our products infringes patents held by third parties. In addition, product development is inherently uncertain in a rapidly evolving technological environment in which there may be numerous patent applications pending, many of which are confidential when filed, with regard to similar technologies.

From time to time, we have faced claims by third parties that our products or technologies infringe their patents or other intellectual property rights, and we may face similar claims in the future. Any claim of infringement could cause us to incur substantial costs defending against or settling the claim, even if the claim is invalid, and could distract the attention of our management. If any of our products is found to violate third-party proprietary rights, we may be required to pay substantial damages. In addition, we may be required to re-engineer our products or seek to obtain licenses from third parties to continue to offer our products. Any efforts to re-engineer our products or obtain licenses on commercially reasonable terms may not be successful, which would prevent us from selling our products, and, in any case, could substantially increase our costs and have a material adverse effect on our business, financial condition, and results of operations.

Manufacturing

Manufacturing operations for our mobile satellite communications and navigation products consist of light manufacture, final assembly and testing. Manufacturing operations for our FOG products are more complex. We produce specialized optical fiber, FOG components and sensing coils and combine them with components purchased from outside vendors for assembly into finished goods. These finished goods undergo extensive calibration and verification over temperature and rotation before shipping to customers. We own optical fiber drawing towers with which we produce the specialized optical fiber that we use in all of our FOG products. We manufacture, warehouse and distribute our mobile satellite communications products at our facilities in Middletown, Rhode Island. We manufacture our navigation and FOG products in our facility located in Tinley Park, Illinois. Our manufacturing processes are controlled by an ISO 9001:2015-certified quality standards program.

Raw Materials, Components and Services

We purchase raw materials and most of the components used in our various manufacturing processes, such as printed circuit boards, injection-molded plastic parts, machined metal components, connectors and housings. In addition, we purchase certain services, predominantly networking and mobile broadband services, to support the delivery of our mobile communications solutions.

The materials, molds and dies, subassemblies and components purchased from other manufacturers, and other materials and supplies used in our manufacturing processes have generally been available from a variety of sources. We believe there are a number of acceptable vendors for the components we purchase. We regularly evaluate both domestic and foreign suppliers for quality, dependability and cost effectiveness. From time to time the cost and availability of materials and services is affected by the demands of other industries, among other factors. Whenever practical, we seek to establish multiple sources for the purchase of raw materials, components and services to achieve competitive pricing, maintain flexibility, reduced tariff exposure, and protect against supply disruption. When possible, we employ a company-wide procurement strategy designed to reduce the purchase price of materials, purchased components and services.

For reasons of quality assurance, scarcity or cost effectiveness, certain components and raw materials used in the manufacturing of our products, as well as certain services utilized in the delivery of our solutions, are available only from a limited number of suppliers or from a sole source supplier. We work with our suppliers to develop contingency plans intended to assure continuity of supply while maintaining high quality and reliability, and in some cases, we have established long-term supply contracts with our suppliers. Due to the nature of certain raw materials, purchased components and services, we may not be able to quickly establish additional or replacement sources for certain components, materials or services. In the event that we are unable to obtain sufficient quantities of raw materials or components or unable to obtain sufficient access to the services needed to deliver our solutions on commercially reasonable terms or in a timely manner, our ability to manufacture and deliver our products and services on a timely and cost-competitive basis may be compromised, which may have a material adverse effect on our business, financial condition and results of operations. To date, we have not experienced any material adverse effect on our financial condition or results of operations due to supplier limitations.

Competition

We encounter significant competition in the markets we serve, and we expect this competition to intensify in the future. Many of our primary competitors are well-established companies and some have substantially greater financial, managerial, technical, marketing, operational, and other resources than we do.

In the marine market for satellite TV equipment, we compete primarily with Intellian, Cobham SATCOM, Orbit Communication Systems, Raymarine (Intellian made), KNS, and Sea King (King Controls).

In the marine market for voice, fax, data, and Internet communications equipment, we compete primarily with Intellian, Cobham SATCOM, Orbit Communication Systems, Jotron AS, KNS Inc., Inmarsat, AddValue, and Iridium Satellite LLC.

In the marine market for high-speed voice, fax, data, and Internet services, we compete primarily with Inmarsat, Marlink, Speedcast, Network Innovations, Global Eagle Entertainment, and Isotropic Network. We also face competition from providers of low-speed data services, which include Inmarsat, Globalstar LP, and Iridium Satellite LLC.

In the market for land mobile satellite TV equipment, we compete primarily with King Controls and Winegard Company.

In the markets for media content, we compete primarily with Swank Motion Pictures and Newspapersdirect Inc.

In the markets for mobile satellite connectivity technology, the principal competitive factors are product size, features, design, performance, reliability, and price. In the markets for airtime services, the principal competitive factors are geographic coverage, data speed, value-added services, and price. In the markets for media content, the principal competitive factors are license rights, distribution, and price.

In the inertial navigation markets, we compete primarily with Honeywell International Inc., Northrop Grumman Corporation, Goodrich Aerospace, IAI, Fizoptica, SAGEM, and Systron Donner Inertial (purchased by EMCORE in 2019). We believe the principal competitive factors in these markets are performance, size, reliability, durability, and price.

Although we believe that we compete favorably with respect to these factors, there can be no assurance that we will continue to do so. We encounter substantial competition in most of our product lines, although no single competitor competes with us across all product lines.

Research and Development

Focused, efficient investments in research and development are critical to our future growth and competitive position in the marketplace. Our research and development efforts are directly related to timely development of new and enhanced products and services that are central to our core business strategy and our ability to drive profitable, sustainable growth. The industries in which we compete are subject to rapid technological developments, evolving industry standards, changes in customer requirements, and new product and service introductions and enhancements. As a result, our success depends in part upon our ability, on a cost-effective and timely basis, to continue to enhance our existing products and to develop and introduce new products and services that improve performance and meet customers' operational and cost requirements. Our current research and development efforts include projects to achieve additional cost reductions in our products and the development of new products and services for our existing marine and land mobile communications markets, and navigation, guidance, and stabilization application markets. For example:

- In March 2019, we released the TracPhone V11-HTS, which we believe is the world's fastest 1-meter Ku/C-band maritime VSAT antenna for global connectivity.
- In June 2019, we introduced KVH Watch, our new Internet of Things (IoT) Connectivity as a Service program for maritime applications utilizing our global VSAT communications.
- In October 2019, we released the TracVision UHD7 for Ultra High-definition 4K TV entertainment at sea.
- In June 2020, we introduced the P-1775 inertial measurement unit (IMU) featuring our new PIC Inside photonic integrated chip (PIC) technology.
- In August 2020, we launched the TracVision TV10, a 1 meter ultra high-efficiency marine satellite TV antenna designed to provide the biggest coverage footprint in our TracVision series.

Our research and development activities consist of projects funded by us and projects funded partly by customers. Our customer-funded research efforts are made up of contracts with defense and OEM customers, whose performance specifications are unique to their product applications. Defense and OEM research often results in new product offerings. We strive to be the first company to bring a new product to market in order to maintain our market leadership position, and we use our own funds when necessary to accelerate new product development efforts.

Government Regulation

Our manufacturing operations are subject to various laws governing the protection of the environment and our employees. These laws and regulations are subject to change, and any such change may require us to improve our technologies, incur expenditures, or both, in order to comply with such laws and regulations.

We are subject to compliance with the U.S. Export Administration Regulations. Some of our products have military or strategic applications and are on the Munitions List of the U.S. International Traffic in Arms Regulations. These products require an individual validated license to be exported to certain jurisdictions. The length of time involved in the licensing process varies and can result in delays of the shipping of the products. Sales of our products to either the U.S. government or its prime contractors are subject to the U.S. Federal Acquisition Regulations.

We are also subject to the laws and regulations of the U.S. and foreign jurisdictions in which we offer and sell our satellite communication products and services, including those of the European Union, Brazil, Norway, Singapore, and Japan. These laws and regulations, as well as the interpretation and application of these laws and regulations, are subject to change and any such change may affect our ability to offer and sell existing and planned satellite communications products and services.

KVH Team Demographics

KVH team members are essential to the success of KVH. We had 639 team members as of December 31, 2020, full-time employees, part-time employees, and long-term contractors. These figures do not include short-term or temporary contractors, which in the aggregate do not comprise a material portion of our workforce.

KVH Team Member Headcount	
Category	#
Full-time employees	592
Part-time employees	37
Long-term contractors	10
Total	639

Our team members are directly responsible for the creation, development, manufacture, marketing, sale, repair and support of our products and services. Because we sell and support our products globally, we have a globally diverse workforce to manufacture products in the U.S. and support our customers in the U.S. and internationally:

KVH Team Member Headcount	
Country	#
Brazil	2
Cyprus	3
Denmark	18
Germany	2
Greece	2
Hong Kong	2
India	29
Italy	2
Japan	1
Norway	6
Philippines	38
Singapore	15
South Africa	1
Spain	1
United Arab Emirates	1
United Kingdom	100
United States	416
Total	639

Approximately 237 team members, or 37%, are directly involved in supporting our technology in positions such as engineers, technicians, or software developers.

Employee Engagement

We believe we have strong relationships with our workforce. In 2020, our global turnover rate was 9.9%, including voluntary and involuntary separations. Among our 72 key executive leaders and most critical individual technology contributors, our turnover rate was 1.4% in 2020.

The average length of employee service is 9 years. The continuity of our employee base is important to the success of our business, as our employees have deep knowledge of our products and are critical to the services that we provide to our customers.

KVH surveys team member engagement annually. The annual survey standardizes how KVH measures engagement across our organization and affords us an opportunity to address areas for improvement. By listening to employees, we gain a better understanding of what our employees need in order to succeed, enabling us to develop programs that create a stronger and more committed workforce.

Inclusion and Diversity

KVH actively cultivates the diverse talents of our team and strives to recruit and maintain a diverse and inclusive workforce everywhere we operate, which we believe enables better business decisions, enhanced product development, and superior customer service. Our diversity and inclusion principles are also reflected in our employee training, in particular with respect to our policies against harassment in the workplace.

Competitive Pay and Benefits

KVH's compensation programs are designed to align the compensation of our employees with KVH's performance and provide incentives to attract, retain and motivate employees to achieve superior results. The structure of our compensation programs balances incentive earnings for both short-term and long-term performance. Specifically:

- We provide employee wages that we believe are competitive and consistent with employee positions, skill levels, experience, knowledge, and geographic location.
- We review compensation and benefits surveys to obtain relevant industry data in order to benchmark our practices against those of industry peers.
- We seek to align the interests of our executives with those of our shareholders by paying a significant portion of our executives' total compensation in the form of equity awards, which increase in value as the price of our common stock increases.
- Annual salary increases and incentive compensation include adjustments based on merit, which is communicated to employees through our annual review process and upon internal transfers and/or promotions.
- All employees are eligible for health insurance, paid and unpaid leaves, a retirement plan and life and disability/accident coverage, subject to applicable regulations.

Health and Safety

We are committed to protecting the health and safety of our employees and others who enter any of our facilities, wherever located. In 2020 KVH's OSHA total recordable incident rate was 0.47 which is favorable compared to the 2019 OSHA national average of 3.0. In 2020, we introduced a range of new safety protocols in our facilities in an effort to protect our employees and support appropriate health and safety protocols in response to COVID-19 and the global pandemic, including:

- Adding work from home flexibility.
- Offering voluntary on-site COVID-19 testing.
- Improving cleaning protocols across all locations.
- Providing regular communications regarding the impact of the COVID-19 pandemic, including updates regarding health and safety protocols and procedures.
- Implementing temperature screening for all visitors.
- Establishing new physical distancing procedures for on-site employees.
- Issuing personal protective equipment and cleaning supplies to on-site employees.
- Modifying workspaces with plexiglass dividers and touchless faucets.
- Implementing protocols to address actual and suspected COVID-19 cases and potential exposure.

We are committed to continued improvements to our safety, health, and wellness programs to meet our employees' needs, which we believe is critical to attract and retain talent. We believe that creating a safe and supportive workplace is vital to our success.

KVH Team Member Recruitment

We work diligently to attract the best available talent from a diverse range of sources to meet the current and future demands of our business. We have established relationships with major universities, professional associations, and industry groups to proactively attract talent. In 2020, we hired 12 professional level team members.

Working Capital and Seasonality

We hold significant inventory to support our customers and provide prompt delivery of finished goods. As a consequence, we expend substantial working capital in advance of receipt of customer orders. Because of the large size of certain orders, we often incur significant receivables upon order fulfillment.

Our leisure marine business within the mobile connectivity segment is highly seasonal, and seasonality can also impact our commercial marine business. Historically, we have generated the majority of our marine leisure product revenues during the first and second quarters of each year, and these revenues typically decline in the third and fourth quarters of each year. Temporary suspensions of our airtime services typically increase in the third and fourth quarters of each year as boats are placed out of service during the winter months.

ITEM 1A. Risk Factors

An investment in our common stock involves a high degree of risk. You should carefully consider the following risk factors in evaluating our business. If any of these risks, or other risks not presently known to us or that we currently believe are not significant, develops into an actual event, then our business, financial condition and results of operations could be adversely affected. If that happens, the market price of our common stock could decline.

Risks related to our financial performance

We have a history of losses and are uncertain when we may regain profitability.

We recorded substantial losses from continuing operations in each of the last three fiscal years. We expect to incur substantial losses in the near future as we confront the impact of the COVID-19 pandemic on our business, as we continue to bear the expenses of maintaining two satellite networks during the transition of our mini-VSAT customers to our HTS network, as we increase satellite capacity to handle our growing subscriber base, as we continue to shift our business from a model based primarily on product sales to a model based primarily on recurring revenue, and as we continue to invest in research and development to improve our existing products and develop new products, including our photonic chip-based fiber optic gyro. We expect to invest substantially in the development of our photonic chip-based fiber optic gyro in an effort to take advantage of opportunities we may have in the autonomous vehicle and other markets. We expect that, as we increase our investments in these and other areas, including, for example, our Internet of Things (IoT) product, our losses will grow. In order to regain profitability, we must successfully complete the transition of our mini-VSAT customers to our HTS network and continue to introduce new and improved products in order to maintain and improve our competitive position and generate revenue. Our inability to accomplish any of these goals could have a material adverse effect on our revenues, profitability and cash flow, and we cannot assure you when, or whether, we will regain profitability.

Fluctuations in our quarterly net sales and results of operations could depress the market price of our common stock.

Our future net sales and results of operations could continue to vary significantly from quarter to quarter due to a number of factors, many of which are outside our control. Accordingly, you should not rely on quarter-to-quarter comparisons of our results of operations as an indication of future performance. It is possible that our net sales or results of operations in a quarter will fall below the expectations of securities analysts or investors. If this occurs, the market price of our common stock could fall significantly. Our results of operations in any quarter can fluctuate for many reasons, including the impact of the COVID-19 pandemic; changes in demand for our products and services, the timing and size of individual orders from military customers, which may be delayed or canceled for various reasons; the mix of products and services we sell, including the mix of fixed rate and metered contracts for airtime services; our ability to manufacture, test and deliver products in a timely and cost-effective manner, including the availability of components and subassemblies from our suppliers; our success in winning competitions for orders; the timing of new product introductions by us or our competitors; the scope and success of our investments in research and development; expenses incurred in pursuing acquisitions and investments; expenses incurred in expanding, maintaining, or improving our mini-VSAT Broadband network; market and competitive pricing pressures; unanticipated charges or expenses, such as increases in warranty claims; general economic climate; and seasonality of pleasure boat and recreational vehicle usage.

In light of our current and anticipated investments in research and development and the expansion of our HTS network, we expect that our operating expenses in upcoming quarters may increase significantly over the amounts we incurred in prior comparable quarters.

A large portion of our expenses, including expenses for network infrastructure, facilities, equipment, and personnel, are relatively fixed. Accordingly, if our net sales decline or do not grow as much or as quickly as we anticipate, we might be unable to maintain or improve our operating margins. Any failure to achieve anticipated net sales could therefore significantly harm our operating results for a particular fiscal period.

Additional impairments to goodwill or other intangible assets could result in significant charges against earnings.

As a result of our acquisitions, we have recorded, and may continue to record, a significant amount of goodwill and other intangible assets. Under current accounting guidelines, we must assess, at least annually and potentially more frequently, whether the value of goodwill and other intangible assets has been impaired. In 2020, our annual impairment test resulted in an impairment charge of \$10.5 million in our KVH Media reporting unit. Even after recording this impairment, our consolidated balance sheet continues to include \$8.8 million of goodwill and other intangible assets, of which \$4.4 million relates to KVH Media Group. There can be no assurance that our remaining goodwill and other intangible assets will not be further impaired, especially if the global COVID-19 pandemic continues to impact the markets in which we participate.

Risks related to our operations

We must generate a certain level of sales of the TracPhone V-HTS series products and our mini-VSAT Broadband service in order to maintain or improve our service gross margins.

As a result of our mini-VSAT Broadband network infrastructure, our cost of service sales includes certain costs that do not generally vary directly in proportion with the volume of service sales, and we have almost no ability to reduce these fixed costs in the short term. These costs have increased significantly each year as we have further expanded our network to accommodate additional subscriber demand and/or coverage areas, and we expect that this trend will continue in 2021 and beyond, particularly as we expand our HTS network. If sales of our TracPhone V-HTS series products and the mini-VSAT Broadband service, including through our AgilePlans subscription model, do not generate the level of revenue that we expect or if those revenues decline, our service gross margins may continue to decline. The failure to improve our mini-VSAT Broadband service gross margins and unit or subscriber sales would have a material adverse effect on our overall profitability.

The operation of our HTS and legacy satellite networks is causing us to incur significant additional operating costs that adversely affect our operating profit.

In November 2017, we launched our HTS communications service that uses Intelsat's Global IntelsatOne Flex managed services and SKY-Perfect JSAT capacity. We also continue to operate our legacy global network of leased satellite transponders and terrestrial teleports in cooperation with ViaSat, Inc. The operation of both the HTS network and the legacy network has resulted and will continue to result in significant additional operating costs. Our arrangement with ViaSat is currently scheduled to expire in 2021. We expect that the arrangement with ViaSat and related satellite operators will be phased out by the end of 2021, but the reliability of the existing satellite network will need to be maintained during the entirety of the wind-down period. Our focus on the HTS network creates potential risks with respect to the continued operation of our legacy satellite communications network and our contractual arrangement with ViaSat and satellite operators.

We expect to terminate our legacy satellite network by the end of 2021, which may result in a loss of business from customers who are unable or unwilling to convert to our HTS network.

Our maritime airtime services networks generated approximately \$81.4 million of revenue in 2020. At the end of 2020, approximately 38% of our maritime airtime subscribers relied on our legacy airtime network. We intend to provide various incentives to these customers, such as free or discounted upgrade kits and terminals, to entice them to convert their service to our HTS network by the end of 2021. Our inability to convert our legacy satellite customers to our HTS network could result in the loss of revenue. In addition, the costs that we may need to incur to convert our legacy maritime airtime customers to our HTS network may be significant. There can be no assurance that we will retain our legacy airtime customers when we terminate our legacy network at the end of 2021 or that the costs we incur to convert these customers result in profitability either in the short term or the long term.

Our ability to compete in the maritime airtime services market will be impaired if we are unable to provide sufficient service capacity to meet customer demand.

We currently offer our mini-VSAT Broadband service in the Americas, Europe, the Middle East, Africa, Asia-Pacific, and Australian and New Zealand waters. We may need to expand capacity in existing coverage areas to support our subscriber base. If we are unable to reach economical agreements with third-party satellite providers to support our mini-VSAT Broadband service and its technology or if transponder capacity is unavailable to meet growing demand in a given region, our ability to provide airtime services will be at risk and could reduce the attractiveness of our products and services.

Our results of operations are adversely affected by unseasonably cold weather, prolonged winter conditions, disasters or similar events.

Our leisure marine business is highly seasonal, and seasonality can also impact our commercial marine business. Historically, we have generated the majority of our leisure marine product revenues during the first and second quarters of each year, and these revenues typically decline in the third and fourth quarters of each year, compared to the first two quarters. Temporary suspensions of our airtime services typically increase in the third and fourth quarters of each year as boats are placed out of service during winter months. Our leisure marine business is also significantly affected by the weather. Unseasonably cool weather, prolonged winter conditions, hurricanes, unusual amounts of rain, and natural and other disasters may decrease boating, which could reduce our revenues. Specifically, we may encounter a decrease in new airtime activations as well as an increase in the number of cancellations or temporary suspensions of our airtime service.

We have single dedicated manufacturing facilities for each of our mobile connectivity and inertial navigation product categories, and any significant disruption to a facility will impair our ability to deliver our products.

We currently manufacture all of our mobile connectivity products at our manufacturing facility in Middletown, Rhode Island, and the majority of our inertial navigation products at our facility in Tinley Park, Illinois. Some of our production processes are complex, and we may be unable to respond rapidly to the loss of the use of either production facility. For example, our production facilities use some specialized equipment that may take time to replace if they are damaged or become unusable for any reason. In that event, shipments would be delayed, which could result in customer or dealer dissatisfaction, loss of sales and damage to our reputation. Finally, we have only a limited capability to increase our manufacturing capacity in the short term. If short-term demand for our products exceeds our manufacturing capacity, our inability to fulfill orders in a timely manner could also lead to customer or dealer dissatisfaction, loss of sales and damage to our reputation.

Acquisitions may disrupt our operations or adversely affect our results.

We evaluate opportunities to acquire other businesses as they arise. The expenses we incur evaluating and pursuing acquisitions could have a material adverse effect on our results of operations. If we acquire a business, we may be unable to manage it profitably or successfully integrate its operations with our own. Moreover, we may be unable to realize the strategic, financial, operational and other benefits we anticipate, and any acquisition may increase our operating expenses. Further, our approach to acquisitions may involve a number of special financial and business risks, such as entry into new and unfamiliar lines of business or markets, which may present challenges or risks that we did not anticipate; entry into new or unfamiliar geographic regions, including exposure to additional tax and regulatory regimes; increased expenses associated with the amortization of acquired intangible assets; increased exposure to fluctuations in foreign currency exchange rates; charges related to any abandoned acquisition; diversion of our management's time, attention, and resources; loss of key acquired personnel; increased costs to improve or coordinate managerial, operational, financial, and administrative systems, including internal control over financial reporting; dilutive issuances of equity securities; the assumption of legal liabilities; and losses arising from impairment charges associated with goodwill or intangible assets.

If we cannot effectively manage changes in our rate of growth, our business may suffer.

We have previously expanded our operations to pursue existing and potential market opportunities, and we are continuing to expand our international operations. For example, we expanded our service offerings through acquisitions in 2014 and in 2013. This growth placed a strain on our personnel, management, financial and other resources and increased our operating expenses. If we are unable to adjust our operating expenses on a timely basis in response to changes in revenue cycles, our results of operations may be harmed. To manage changes in our rate of growth effectively, we must, among other things, match our manufacturing facilities and capacity to demand for our products and services; secure appropriate satellite capacity to match changes in demand for airtime services; successfully attract, train, motivate and manage appropriate numbers of employees for manufacturing, sales, and customer support activities; effectively manage our inventory and working capital; and ensure that

our procedures and internal controls are revised and updated to remain appropriate for the size and scale of our business operations.

If we are unable to hire and retain the skilled personnel we need to expand our operations, our business will suffer.

To meet our growth objectives, we must attract and retain highly skilled technical, operational, managerial and sales and marketing personnel. If we fail to attract and retain the necessary personnel, we may be unable to achieve our business objectives and may lose our competitive position, which could lead to a significant decline in net sales. We face significant competition for these skilled professionals.

Our success depends on the services of our executive officers.

Our future success depends to a significant degree on the skills and efforts of Martin Kits van Heyningen, our co-founder, President, Chief Executive Officer, and Chairman of the Board, and of Brent Bruun, our Chief Operating Officer and Interim Chief Financial Officer. If we lost the services of Mr. Kits van Heyningen or Mr. Bruun, our business and operating results could be seriously harmed. We also depend on the ability of our other executive officers to work effectively as a team. The loss of one or more of our executive officers could impair our ability to manage our business effectively.

Risks related to our dependence on technology and third parties

Our mobile satellite products currently depend on satellite services, gateway teleports and terrestrial networks provided by third parties, and a disruption in those services could adversely affect sales.

Our satellite antenna products include the equipment necessary to utilize satellite services. We do not own the satellites that directly provide two-way satellite communications or the terrestrial networks that interconnect our facilities with the satellite teleports that communicate with the satellites. We currently offer satellite television products compatible with the DIRECTV and DISH Network services in the United States, the Bell TV service in Canada, the Sky Mexico service in Mexico, the Sky UK service in the United Kingdom, Canal+ service in France and Movistar service in Spain and various other regional satellite TV services in other parts of the world.

SES, Eutelsat, Sky Perfect-JSAT, Telesat, EchoStar, Intelsat and Star One currently provide the satellite capacity to support the mini-VSAT Broadband service and our TracPhone V-IP and V-HTS series products. In addition, we have agreements with various teleports and Internet service providers around the globe to support the mini-VSAT Broadband service. The terrestrial fiber links that we use to connect with the Internet and to move our voice and data services between our facilities and the various satellite earth stations that support our services are provided to us through numerous service providers, some of which have contractual relationships with our satellite service providers and not directly with us. We rely on Inmarsat for satellite communications services for our FleetBroadband and FleetOne compatible TracPhone products. We also have an arrangement with Iridium for additional satellite communications services that we make available to our customers as a backup option to provide communications redundancy with our primary service offerings.

We exercise little or no control over these third-party providers of satellite, teleport and terrestrial network services, which increases our vulnerability to problems with the services they provide. Due to our reliance on these service providers, when problems occur, it may be difficult to identify the source of the problem. Service disruption or outages, regardless of whether they are caused by our service, the equipment or services of our third-party service providers, or our customers' or their equipment and systems, may result in loss of market acceptance of our service, and any necessary repairs or other remedial actions may cause us to incur significant costs and expenses. Any failure on the part of third-party service providers to achieve or maintain expected performance levels, stability and security could harm our relationships with our customers, result in claims for credits or damages, damage our reputation, significantly reduce customer demand for our solution and seriously harm our financial condition and operating results.

If customers become dissatisfied with the programming, pricing, service, availability or other aspects of any of these satellite services, or if any one or more of these services becomes unavailable for any reason, we could suffer a substantial decline in sales of our satellite products. There may be no alternative service provider available in a particular geographic area, and our modem or other technology may not be compatible with the technology of any alternative service provider that may be available. Even if available, delays caused by switching our technology to another service provider, if available, and qualifying this new service provider could materially harm our customer relationships, business, financial condition and operating results. In addition, the unexpected failure of a satellite could disrupt the availability of programming and services, which could reduce the demand for, or customer satisfaction with, our products.

We depend on cloud-based data services operated by third parties, and any disruption in the operation of these services could harm our business.

Some of our content services and business records are hosted by various cloud-based data services operated by third parties. Any failure or downtime in one of these services could affect a significant percentage of our customers. Although we control and have access to our servers and the components of our network that are located in our internal facilities and certain of our external data facilities, we do not control the operation of external facilities. The providers of our data management services have no obligation to renew their agreements with us on commercially reasonable terms, or at all. If we are unable to renew these agreements on commercially reasonable terms, or if one or more of our data management service providers is acquired, closes, suffers financial difficulty or is unable to meet our growing capacity needs, we may be required to transfer our data to other services, and we may incur significant costs and service interruptions in connection with doing so, which could harm our reputation with our customers and adversely affect our revenues and results of operations.

Our media and entertainment business relies on licensing arrangements with content providers, and the loss of, or changes in, those arrangements could adversely affect our business.

We distribute premium news, sports, movies, and music content for commercial and leisure customers in the maritime, hotel, and retail markets. We license this content from third parties on a non-exclusive basis without long-term license agreements. Any content provider could terminate our arrangements without notice or could adversely modify the terms of the arrangement, including price increases. Further, the licenses we obtain are limited in scope, and any violation of the terms of a license could expose us to liability for copyright infringement. We pay license fees based in part on the revenue we generate from sublicenses, and our licensors generally have the right to audit our records. Failure to pay required license fees could result in termination of our license rights, penalties and damages. The loss of content could adversely affect the attractiveness of our media and entertainment offerings, which could in turn adversely affect our revenues. Any increase in the cost of content could reduce the profitability of these offerings.

Cybersecurity breaches could disrupt our operations, expose us to liability, damage our reputation, and require us to incur significant costs or otherwise adversely affect our financial results.

We are highly dependent on information technology networks and systems, including the Internet and third-party systems, to securely process, transmit and store electronic information, including personal information of our customers. We also retain sensitive data, including intellectual property, proprietary business information, personally identifiable information, credit card information, and usage data of our employees and customers on our computer networks and those of third parties. Although we take certain protective measures and endeavor to modify them as we believe circumstances warrant, invasive technologies and techniques continue to evolve rapidly, and increasingly sophisticated hacking organizations are targeting business systems. As a result, the computer systems, software and networks that we use are vulnerable to disruption, shutdown, unauthorized access, misuse, erasure, alteration, employee error, phishing, computer viruses, ransomware or other malicious code, and other events that could have a security impact. The protective measures on which we rely may be inadequate to prevent or detect cybersecurity breaches or determine the extent of any breach, and there can be no assurance that undetected breaches have not already occurred. If any of these events were to occur, they could disrupt our operations, distract our management, cause us to lose existing customers and fail to attract new customers, as well as subject us to regulatory actions, litigation, fines, damage to our reputation or competitive position, or orders or decrees requiring us to modify our business practices, any of which could have a material adverse effect on our financial position, results of operations or cash flows.

Risks related to economic conditions and trade relations

Our revenues, results of operations and financial condition have been, and may continue to be, adversely impacted by economic turmoil, political events, macroeconomic conditions, credit tightening and associated declines in consumer and enterprise spending, and by the continuation of the COVID-19 pandemic.

Economic conditions in the various geographic markets we serve have experienced significant turmoil over the last several years, including downturns related to the COVID-19 pandemic, slow economic activity, tight credit markets, inflation and deflation concerns, low consumer confidence, limited capital spending, adverse business conditions, war and refugee crises in the Middle East and Europe, terrorist attacks, the departure of the United Kingdom from the European Union, changes in government priorities, trade wars, a government shutdown, gridlock from a divided Congress, and liquidity concerns. These factors vary in intensity by region. Further, in response to the COVID-19 pandemic, governments have implemented, revised, withdrawn, reinstated and expanded extensive safety precautions, including quarantines, travel restrictions, business closures, cancellations of public gatherings and other measures. Other organizations and individuals continue to take additional steps to avoid or reduce infection, including limiting travel and implementing work-at-home policies. These measures have significantly

disrupted normal business operations both in and outside of affected areas and complying with them has increased our costs. Travel restrictions and safety precautions have also limited our ability to service and install our equipment. Although we are unable to predict the ongoing impact of the pandemic, our mobile communications business in particular largely depends on travel. The operations of our KVH Media Group have been particularly impacted due in part to the global reduction in travel resulting from the pandemic. We anticipate that, until the pandemic is contained, governmental, individual, business and other organizational measures to limit the spread of the virus will continue to adversely affect our revenues, results of operations and financial condition, perhaps materially. An outbreak of infection in any of our facilities could severely disrupt our operations. We continue to monitor government recommendations and have made modifications to our operations because of the pandemic. Our customers' businesses could be further disrupted, and our revenues could continue to be adversely affected. Additionally, global economic disruptions like the COVID-19 pandemic could negatively impact our supply chain and cause delays in the delivery of raw materials, components and other supplies that we need to conduct our operations. The extent to which the pandemic will continue to impact our business will depend on many factors beyond our control, including the speed of contagion, the development and implementation of effective preventative measures and vaccines, the scope of governmental and other restrictions on travel and other activity, and public reactions to these factors.

There can be no assurances that government programs to maintain or improve economic conditions, including stimulus and other aid programs intended to combat the impact of the pandemic, will be effective. As a result of these and other factors, customers and government entities could continue to slow or suspend spending on our products and services. We may also incur increased credit losses and need to further increase our allowance for doubtful accounts, which would have a negative impact on our earnings and financial condition.

We cannot predict the timing, duration, or ultimate impact of the turmoil in our markets. We expect our business to continue to be adversely impacted by this turmoil, particularly in relation to the COVID-19 pandemic, to varying degrees and for varying amounts of time, in all our geographic markets.

Changes in U.S. trade policy, including changes to existing trade agreements and any resulting changes in international trade relations, may have a material adverse effect on us.

The change in U.S. presidential administrations may alter the U.S.'s approach to international trade, which may impact existing bilateral or multi-lateral trade agreements and treaties with foreign countries. The U.S. has imposed tariffs on certain foreign goods and may increase tariffs or impose new ones, and certain foreign governments have retaliated and may continue to do so. We derive a majority of our revenues from international sales, which makes us especially vulnerable to increased tariffs. Changes in U.S. trade policy have created ongoing turmoil in international trade relations, and it is unclear what future actions the U.S. government or foreign governments will or will not take with respect to tariffs or other international trade agreements and policies. Current trade negotiations may fail, which may exacerbate these risks. Ongoing or new trade wars or other governmental action related to tariffs or international trade agreements or policies could reduce demand for our products and services, increase our costs, reduce our profitability, adversely impact our supply chain or otherwise have a material adverse effect on our business and results of operations.

Changes in foreign currency exchange rates negatively affect our financial condition and results of operations.

Because of the scope of our foreign sales and foreign operations, we face significant exposure to movements in exchange rates for foreign currencies, particularly the pound sterling and the euro. During 2019 and 2020, the U.S. dollar strengthened slightly against certain foreign currencies, which adversely affected revenues reported in U.S. dollars and decreased the reported value of our assets in foreign countries. If the U.S. dollar continues to strengthen (as has recently occurred relative to the pound sterling), our revenues denominated in foreign currencies but reported in U.S. dollars, as well as the reported value of our assets in foreign countries, would be commensurately lower.

We also have intragroup receivables and liabilities, such as loans, that can generate significant foreign currency effects. Changes in exchange rates, particularly the U.S. dollar against the pound sterling, could lead to the recognition of unrealized foreign exchange losses.

Moreover, certain of our products and services are sold internationally in U.S. dollars; if the U.S. dollar strengthens, the relative cost of these products and services to customers located in foreign countries would increase, which could adversely affect export sales. In addition, most of our financial obligations, including payments under our outstanding debt obligations, must be satisfied in U.S. dollars. Our exposures to changes in foreign currency exchange rates may change over time as our business practices evolve and could result in increased costs or reduced revenue and could adversely affect our cash flow. Changes in the relative values of currencies occur regularly and may have a significant impact on our operating results. We cannot predict with any certainty changes in foreign currency exchange rates or the degree to which we can cost-effectively mitigate this exposure.

Risks related to government sales

Our financial performance is impacted by U.S. government contracts, which are subject to uncertain levels of funding and termination

We are unable to predict the impact on our business of Congressional gridlock, tax reform and government policies, including new expenditures to address the COVID-19 pandemic, which have increased already significant budget deficits and may lead to an overall reduction in federal spending on programs important to our business. A reduction in sales to the U.S. government or its contractors, whether due to lack of funding, for convenience or otherwise, or the occurrence of delays, could negatively impact our results of operations and financial condition.

The purchasing and delivery schedules and priorities of the U.S. military, government contractors and foreign governments are often unpredictable and subject to uncertain levels of funding and termination.

We have historically sold a substantial portion of our TACNAV and FOG products and services to the U.S. government and its contractors as well as foreign military and government customers, either directly or as a subcontractor to other contractors. These customers often use a competitive bidding process and have unique purchasing and delivery requirements, which often makes the timing of sales to these customers unpredictable. Factors that affect their purchasing and delivery decisions include increasing budgetary pressures, which may reduce or delay funding for military programs; changes in modernization plans for military equipment; changes in tactical navigation requirements; global conflicts impacting troop deployment, including troop withdrawals; priorities for current battlefield operations; new military and operational doctrines that affect military equipment needs; sales cycles that are long and difficult to predict; shifting response time and/or delays in the approval process associated with the export licenses we must obtain prior to the international shipment of certain of our military products; delays in military procurement schedules; and delays in the testing and acceptance of our products, including delays resulting from changes in customer specifications.

In addition, U.S. government contracts generally permit the government to terminate the contract without prior notice, at the government's convenience or for default based on performance. Government customers can also decline to exercise previously disclosed contract options. A termination arising out of our default could expose us to liability and adversely affect our ability to obtain future contracts and orders. Furthermore, on contracts for which we are a subcontractor and not the prime contractor, the U.S. government could terminate the prime contract for convenience or otherwise, irrespective of our performance as a subcontractor.

These factors periodically cause substantial fluctuations in sales of our TACNAV and FOG products and services. Fluctuating commercial sales of our inertial navigation products are also making it harder to predict our future revenues. For example, TACNAV product sales increased \$6.1 million, or 125%, from 2019 to 2020, while sales of our FOG products remained flat between 2019 and 2020.

Sales of our FOG systems and TACNAV products generally consist of a few large orders, and the delay or cancellation of a single order will substantially reduce our net sales. Only a few customers account for a substantial portion of our inertial navigation revenues, and the loss of any of these customers could substantially reduce our net sales.

We derive a significant portion of our inertial navigation revenues from a small number of customers, many of whom are contractors for the U.S. government. KVH products sold to these customers are purchased through orders that can generally range in size from several hundred thousand dollars to several million dollars. For example, we received an order for \$10.0 million of TACNAV products in July 2020, an order for \$4.0 million of FOG products in October 2019 and orders for \$6.7 million and \$3.5 million of TACNAV products and services in September 2019 and April 2017, respectively. Orders of this size are often unpredictable and difficult to replicate. As a result, the delay or cancellation of a single order could materially reduce our net sales and results of operations. We routinely experience repeated and unanticipated delays in defense orders, which make our revenues and operating results less predictable. Because our inertial navigation products typically have relatively higher product gross margins than our mobile connectivity products, the loss of an order for inertial navigation products could have a disproportionately adverse effect on our results of operations.

Risks related to our industry

Competition may limit our ability to sell our mobile connectivity products and services and inertial navigation products.

The mobile connectivity markets and defense navigation and inertial navigation markets are very competitive, and we expect this competition to intensify. We may not be able to compete successfully against current and future competitors, which could

impair our ability to sell our products and services. For example, improvements in the performance of lower-cost gyros by competitors could jeopardize sales of our FOGs and FOG-based systems. As our market share in the mobile satellite communication market has grown, competition has intensified significantly, most notably from companies that seek to compete primarily on price. These companies may continue to implement price reductions and discounts for both products and services, which have required us to reduce our prices or offer discounts in order to maintain or increase our market share. Some of our VSAT competitors have also leveraged partnerships amongst themselves in order to capture larger combined market share. Further, some of the companies that we depend on to supply us with capacity on satellite communications networks may vertically integrate by introducing their own products and services to compete with ours, which might motivate them to stop providing satellite network capacity to us, or to make it available only on less favorable terms.

In the marine market for satellite TV equipment, we compete primarily with Intellian, Cobham SATCOM, Orbit Communication Systems, Raymarine (Intellian made), KNS, and Sea King (King Controls). In the marine market for voice, fax, data, and Internet communications equipment, we compete primarily with Intellian, Cobham SATCOM, Orbit Communication Systems, Jotron AS, KNS Inc., Inmarsat, AddValue, and Iridium Satellite LLC. In the marine market for high-speed voice, fax, data, and Internet services, we compete primarily with Inmarsat, Marlink, Speedcast, Network Innovations, Global Eagle Entertainment and Isotropic Network. We also face competition from providers of low-speed data services, which include Inmarsat, Globalstar LP, and Iridium Satellite LLC. In the market for land mobile satellite TV equipment, we compete primarily with King Controls and Winegard Company. In the markets for media content, the KVH Media Group competes primarily with Swank Motion Pictures and NewspaperDirect Inc. In the inertial navigation markets, we compete primarily with Honeywell International Inc., Northrop Grumman Corporation, Goodrich Aerospace, IAI, Fizoptica, SAGEM, and Systron Donner Inertial. Many of our competitors are well-established companies that have substantially greater financial, managerial, technical, marketing, personnel and other resources than we do, which may help them to compete more effectively against us.

The emergence of a competing small maritime VSAT antenna and complementary service or other similar service could reduce the competitive advantage we believe we currently enjoy with our smaller TracPhone V-HTS series antennas and Ku-band mini-VSAT Broadband service, or with our TracPhone V11-HTS antenna and our C/Ku-band mini-VSAT Broadband service.

Our TracPhone V-HTS and V-IP systems offer customers a range of benefits due to their integrated design, hardware costs that are lower than existing maritime Ku-band VSAT systems, and broadband technology. We currently compete against companies that offer established maritime Ku-band VSAT service using, in some cases, antennas 1-meter in diameter or larger. While we are unaware of any company offering a 37-cm VSAT solution comparable to our TracPhone V3-HTS, we are encountering regional competition from companies offering 60-cm VSAT systems and services, which are comparable in size to our TracPhone V7-HTS. Likewise, our TracPhone V11-HTS, at 1.1-meters in diameter, is approximately 85% smaller and lighter than competing C-band maritime VSAT systems, which use antennas in excess of 2.4-meters in diameter to provide similar global services. We are unaware of any competitor currently offering a similar size solution for global C-band coverage, but any introduction of such a product could adversely impact our success. In addition, other companies could replicate some of the distinguishing features of our TracPhone V-HTS series products, which could potentially reduce the appeal of our solution, increase price competition, and adversely affect sales. We compete against Inmarsat's Fleet Xpress service, a global Ka-band mobile VSAT service that Inmarsat claims is faster and has a lower price per megabit than existing Ku-band services. This service may continue to adversely impact sales of our mini-VSAT Broadband service and related equipment. Our arrangement to use the IntelsatOne Flex service for our HTS network is not exclusive, and competitors' use of this service could also adversely impact sales. Moreover, consumers may choose other services such as FleetBroadband or Iridium OpenPort for their service coverage at potentially lower hardware costs despite higher service costs and slower data rates.

Any failure to maintain and expand our third-party distribution relationships may limit our ability to penetrate markets for mobile connectivity products and services.

We market and sell our mobile connectivity products and services through an international network of independent retailers, chain stores and distributors, as well as to manufacturers of marine vessels, recreational vehicles and buses. Most of these relationships are non-exclusive, allowing these third parties to market competing products. If we fail to maintain relationships with our current distributors, fail to develop relationships with new distributors in new and existing markets, or manage, train, or provide appropriate incentives to our existing distributors, or if our distributors are not successful in their sales efforts, sales of our products and services may decline and our operating results could be harmed.

We depend on sole or limited source suppliers, and any disruption in supply could impair our ability to deliver our products on time or at expected cost.

We obtain many key components for our products from third-party suppliers, and in some cases we use a single or a limited number of suppliers. Any interruption in supply could impair our ability to deliver our products until we identify and qualify a new source of supply, which could take several weeks, months or longer and could increase our costs significantly. Suppliers might change or discontinue key components, which could require us to modify our product designs. For example, we previously experienced changes in the chemicals used to coat our optical fiber, which changed its characteristics and necessitated design modifications. Regulations requiring government contractors to implement processes to avoid counterfeit parts may require us to find new sources of materials or components if a supplier cannot meet those requirements. In general, we do not have written long-term supply agreements with our suppliers but instead buy components through purchase orders, which expose us to potential price increases and termination of supply without notice or recourse. We generally do not carry significant inventories of product components, which could magnify the impact of the loss of a supplier. If we must use a new source of supply, we could face unexpected manufacturing difficulties and loss of product performance or reliability. In addition, from time to time, lead times for certain components can increase significantly due to imbalances in overall market supply and demand. This, in turn, could limit our ability to satisfy demand for our products on a timely basis and could result in the cancellation of customer orders. Further, adverse economic conditions, including conditions caused by the current COVID-19 pandemic, could result in financial difficulties or bankruptcy for any of our suppliers, which could adversely affect our business and results of operations.

We may source more materials and components from international suppliers, which could disrupt our business.

Although we have historically manufactured and sourced raw materials for the majority of our products domestically, in order for us to compete with lower priced competing products while also improving our profitability, in some instances we have found it desirable to source raw materials and manufactured components and assemblies from Europe, Asia, and South and North America. Reliance on foreign manufacturing and/or raw material supply has lengthened our supply chain and increased the risk that a disruption in that supply chain could have a material adverse effect on our operations and financial performance.

Changes in the competitive environment, supply chain issues, and the transition to our HTS network may require inventory write-downs.

From time to time, we have recorded significant inventory charges and/or inventory write-offs as a result of substantial declines in customer demand. For example, in 2019, we recorded a \$2.3 million inventory reserve relating to our TracPhone V-IP products as we decided to no longer promote sales of these products but instead to focus our efforts on migrating customers to our HTS network and products. Market or competitive changes could lead to future charges for excess or obsolete inventory, especially if we are unable to appropriately adjust the supply of material from our vendors.

Risks related to intellectual property

We are devoting significant resources to research and development efforts that may be unsuccessful. If we are unable to improve our existing mobile connectivity and inertial navigation products and services and develop new, innovative products and services, our sales and market share may decline.

The markets for mobile connectivity products and services and inertial navigation products and services are each characterized by rapid technological change, frequent new product innovations, changes in customer requirements and expectations, and evolving industry standards. For example, we now compete with Inmarsat's Fleet Xpress satellite communications products and services. If we fail to make innovations in our existing products and services and reduce the costs of our products and services in a timely way, our market share may decline. For example, the introductions of our TracVision TV-series antennas in 2014 occurred later than we had anticipated, which we believe led certain customers to purchase competing products. Products or services using new technologies, or emerging industry standards, could render our products and services obsolete. If our competitors successfully introduce new or enhanced products or services that outperform our products or services, or are perceived as doing so, we may be unable to compete successfully in the markets affected by these changes.

Research and development in our industry is inherently complex and uncertain, and our current and anticipated research and development projects may not achieve the results we seek. Our research and development expenses decreased 1% from 2019 to 2020, and the financial resources that we can devote to our research and development efforts may be insufficient to achieve our goals. Our efforts may not result in any viable products or may result in products whose performance, features, price or availability may not be attractive to customers or that we cannot manufacture and sell profitably.

Our business may suffer if we cannot protect our proprietary technology.

Our ability to compete depends significantly upon our patents, copyrights, source code, and other proprietary technology. The steps we have taken to protect our technology may be inadequate to prevent others from using what we regard as our technology to compete with us. Our patents will eventually expire and could be challenged, invalidated or circumvented. Customers or others with access to our proprietary or licensed media content could copy that content without permission or otherwise violate the terms of our customer agreements, which would adversely affect our revenues and could impair our relationships with content providers. In addition, the laws of some foreign countries do not protect our proprietary technology to the same extent as the laws of the United States, which could increase the likelihood of misappropriation. Any misappropriation of our technology or the development of competing technology could seriously harm our competitive position, which could lead to a substantial reduction in net sales. If we resort to legal proceedings to enforce our intellectual property rights, the proceedings could be burdensome, disruptive and expensive, distract the attention of management, and there can be no assurance that we would prevail.

Also, we have delivered certain technical data and information to the U.S. government under procurement contracts, and it may have unlimited rights to use that technical data and information. There can be no assurance that the U.S. government will not authorize others to use that data and information to compete with us.

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

Our industries are characterized by the existence of a large number of patents and frequent claims and related litigation regarding patent and other intellectual property rights. We cannot be certain that our products do not and will not infringe issued patents, patents that may be issued in the future, or other intellectual property rights of others.

From time to time we have faced claims by third parties that our products or technology infringe their patents or other intellectual property rights, and we may face similar claims in the future. For example, we were sued for patent infringement in 2015, and we settled this claim in January 2016 with a payment of cash. Any claim of infringement could cause us to incur substantial costs defending against or settling the claim, even if the claim is invalid, and could distract the attention of our management. If any of our products are found to violate third-party proprietary rights, we may be required to pay substantial damages. In addition, we may be required to re-engineer our products or obtain licenses from third parties to continue to offer our products. Any efforts to re-engineer our products or obtain licenses on commercially reasonable terms may not be successful, which would prevent us from selling our products, and, in any case, could substantially increase our costs and have a material adverse effect on our business, financial condition and results of operations.

Risks related to indebtedness

An anticipated audit of our Paycheck Protection Program loan may result in, among other things, a determination that we are not entitled to forgiveness of the loan or that we were not entitled to receive the loan, in which case we would have to repay the loan, with interest, and may face penalties and harm to our reputation.

In early May 2020, we received a \$6.9 million loan from Bank of America, N.A. under the Paycheck Protection Program of the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act. The loan is described in more detail in Note 5 to our accompanying consolidated financial statements. The loan has a term of two years, and upon application to the Small Business Administration, or SBA, all or a portion of the loan may be forgiven, depending on our use of proceeds and other factors. Under the CARES Act, loan forgiveness is available for certain payroll costs, rent payments, mortgage interest and utilities, if stated conditions are met. While we believe we have used the proceeds of the loan for purposes eligible for forgiveness, we cannot provide any assurance that we will be eligible for any loan forgiveness, that we will apply for forgiveness, or that any amount of the loan will be forgiven, in which case we must repay the loan with interest.

The previous Secretary of the U.S. Department of the Treasury stated that all Paycheck Protection Program loans over \$2.0 million would be audited; accordingly, we expect that our loan and any application we file for forgiveness will be reviewed carefully. In order to apply for the loan, we were required to certify, among other things, that the then-current economic uncertainty made the loan request necessary to support our ongoing operations. We made this certification in good faith after our management and our Board of Directors reviewed our history of losses, our financial situation, our expectations regarding the impact of the pandemic on our business, and our access to alternative forms of capital, and we believe that we satisfied all eligibility criteria for the loan. The certification we were required to provide did not contain any objective criteria and is subject to interpretation. However, the SBA issued guidance stating that it is unlikely that a public company with substantial market value and access to capital markets would be able to make the required certification in good faith. If, despite our good-faith belief that we satisfied all eligibility requirements for the loan, we are later determined to have been ineligible to receive the loan or to have violated any laws or regulations in connection with the loan, such as the False Claims Act, we may be required

to repay the loan in full and may be subject to civil, criminal and administrative penalties. Our receipt of the loan may result in adverse publicity and damage to our reputation, and any review or audit of the loan or any legal claims could consume significant financial and management resources.

Our credit facility contains financial and restrictive covenants that we may not satisfy, and that, if not satisfied, could result in the acceleration of any outstanding indebtedness and limit our ability to borrow additional funds. The credit facility also imposes restrictions that may limit our ability to pursue business opportunities.

Although no amounts were outstanding under the agreements governing our secured credit facility as of December 31, 2020, the agreements subject us to various financial and other affirmative and negative covenants with which we must comply on an ongoing or periodic basis. These include covenants pertaining to a maximum consolidated leverage ratio and a minimum consolidated fixed charge coverage ratio and covenants requiring the mandatory prepayment of amounts outstanding under the revolver under specified circumstances. The agreements also subject us to various restrictions on our ability to engage in certain activities, such as raising capital or acquiring businesses. These restrictions may limit or restrict our cash flow and our ability to pursue business opportunities or strategies that we would otherwise consider to be in our best interests.

Risks related to government regulation

Our international operations complicate our business and require us to comply with multiple regulatory environments.

Historically, sales to customers outside the United States have accounted for a significant portion of our net sales. We derived 64% and 54% of our revenues in 2020 and 2019, respectively, from sales to these foreign customers. We have foreign offices in Denmark, the United Kingdom, Singapore, Japan, Norway, Cyprus and the Philippines, as well as a subsidiary in Brazil that manages local sales. Nonetheless, substantially all of our personnel and operations, particularly for our mobile connectivity equipment business and our inertial navigation business, are located in the United States. Our limited international operations may impair our ability to compete successfully in international markets and to meet the service and support needs of our customers in countries where we have little to no infrastructure. We face a number of risks associated with our international business activities, which may increase our costs and require significant management attention. These risks include restrictions on international travel, which may restrict our ability to grow and service our business; tariffs; sanctions or other trade restrictions that preclude or restrict doing business with particular foreign governments, companies or individuals; technical challenges we may face in adapting our mobile connectivity products to function with different satellite services and technology in use in various regions around the world; satisfaction of international regulatory requirements and delays and costs associated with procurement of any necessary licenses or permits; the potential unavailability of content licenses covering international waters and foreign locations; restrictions on the sale of certain inertial navigation products to foreign military and government customers; increased costs of providing customer support in multiple languages; increased costs of managing operations that are international in scope; potentially adverse tax consequences, including restrictions on the repatriation of earnings; protectionist laws and business practices that favor local competitors, which could slow our growth in international markets; potentially longer sales cycles; potentially longer accounts receivable payment cycles and difficulties in collecting accounts receivable; and economic and political instability in some international markets.

We could incur additional legal compliance costs associated with our international operations and could become subject to legal penalties if we do not comply with certain regulations.

As a result of our international operations, we are subject to a number of legal requirements, including the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and the customs, export, trade sanctions and anti-boycott laws of the United States, including those administered by the U.S. Customs and Border Protection, the Bureau of Industry and Security, the Department of Commerce, the Department of State, and the Office of Foreign Assets Control of the Treasury Department, as well as those of other nations in which we do business. In addition, many of the countries where our customers use our products and services have licensing and regulatory requirements for the importation and use of satellite communications and reception equipment, including the use of such equipment in territorial waters, the transmission of satellite signals on certain radio frequencies, the transmission of voice over Internet services using such equipment, and, in some cases, the reception of certain video programming services. These laws and regulations are changing continuously, making compliance complex. We incur significant costs identifying and maintaining compliance with applicable licensing and regulatory requirements. In addition, our training and compliance programs and our other internal control policies may be insufficient to protect us from acts committed by our employees, agents or third-party contractors. Any violation of these requirements by us or our employees, agents or third-party contractors may subject us to significant criminal and civil liability.

Exports of certain inertial navigation products are subject to the U.S. Export Administration Regulations and the International Traffic in Arms Regulations and require a license from the U.S. Department of State prior to shipment.

We must comply with the United States Export Administration Regulations and the International Traffic in Arms Regulations, or ITAR. Certain of our products have military or strategic applications and are on the munitions list of the ITAR and require an individual validated license in order to be exported to certain jurisdictions. Any changes in export regulations or reclassifications of our products may further restrict the export of our products, and we may cease to be able to procure export licenses for our products under existing regulations. The length of time required by the licensing process can vary, potentially delaying the shipment of products and the recognition of the corresponding revenue. Any restriction on the export of a product line or any amount of our products could cause a significant reduction in net sales.

We are subject to FCC rules and regulations, and any non-compliance could subject us to FCC enforcement actions, fines, loss of licenses and possibly restrictions on our ability to operate or offer certain of our services

The satellite communications industry is regulated by the Federal Communications Commission in the United States and, as a result, we are subject to existing and potential FCC regulations relating to privacy, contributions to the Universal Service Fund, or USF, and other requirements. If we do not comply with FCC rules and regulations, we could be subject to FCC enforcement actions, substantial fines, penalties, loss of licenses and possibly restrictions on our ability to operate or offer certain of our services. Any enforcement action by the FCC, which may be a public process, could hurt our reputation in the industry, possibly impair our ability to sell our services to customers and could harm our business and results of operations.

Reform of federal and state USF programs could increase the cost of our service to our customers, diminishing or eliminating our pricing advantage.

The FCC has been considering reform or other modifications to its USF program, which, if implemented, could change the way we calculate our contribution to USF. In April 2012, the FCC released a proposal to consider reforms to the manner in which companies like us contribute to the federal USF program. In general, the proposal indicates that the FCC is considering changes to the companies that should contribute, how contributions should be assessed, and methods to improve the administration of the system. We cannot predict the outcome of this proceeding or its impact on our business. The changes in the U.S. administration may renew interest in completing this proceeding. Should the FCC adopt new contribution mechanisms or otherwise modify contribution obligations that increase our contribution burden, we will either need to raise the amount we currently collect from our customers to cover this obligation or absorb the costs, which would reduce our profit margins. The attractiveness of our services may also be reduced as compared to the services of our competitors that do not appear to contribute to USF, or do not do so to the same extent that we do.

Privacy concerns and domestic or foreign laws and regulations may reduce demand for our services, increase our costs and harm our business.

Our company and our customers can use our services to collect, use and store personal, confidential and sensitive information regarding the content and manner of usage of our services by them, their employees and maritime crews. Federal, state and foreign governments have adopted and are proposing new and more stringent laws and regulations regarding the collection, use, storage and transfer of information, such as the European Union's General Data Protection Regulation ("GDPR"), which took effect in May 2018. The costs of compliance with, and other burdens imposed by, such laws and regulations may limit the use and adoption of our services and reduce overall demand. Non-compliance with these laws and regulations could lead to significant remediation expenses, fines, penalties or other liabilities, such as orders or consent decrees that require modifications to our privacy practices, as well as reputational damage or third-party lawsuits seeking damages or other relief. For example, the GDPR imposes a strict data protection compliance regime with penalties of up to the greater of 2%-4% of worldwide revenue or €10-20 million.

Domestic and international legislative and regulatory initiatives may harm our ability, and the ability of our customers, to process, handle, store, use and transmit information, which could reduce demand for some of our services, increase our costs and force us to change our business practices. For example, the invalidation of the Privacy Shield may affect our ability to collect, use and transfer personal information of EU individuals outside of the EU. These laws and regulations are still evolving, are likely to be in flux and may be subject to uncertain interpretation for the foreseeable future. Our business also could be harmed if legislation or regulations are adopted, interpreted or implemented in a manner that is inconsistent from country to country or inconsistent with our current policies and practices or those of our customers.

We may have exposure to additional tax liabilities, which could negatively impact our income tax expense, net income and cash flow.

We are subject to income and other taxes in the U.S. and the foreign jurisdictions in which we operate. The determination of our worldwide provision for income taxes and current and deferred tax assets and liabilities requires significant judgment and estimation. In the ordinary course of our business, there are many transactions and calculations where the ultimate tax determination is uncertain. Although we believe our tax estimates are reasonable, the ultimate tax outcome may differ materially from our estimates and may materially affect our income tax benefit or expense, net loss or income, and cash flows in the period in which such determination is made. As of December 31, 2020, we had gross uncertain tax positions of \$1.7 million, consisting of a \$1.1 million reduction to deferred tax assets and \$0.6 million as a liability for uncertain tax positions.

Deferred tax assets are recognized for the expected future tax consequences of temporary differences between the carrying amount for financial reporting purposes and the tax bases of assets and liabilities, and for net operating losses and tax credit carry forwards. We have historically recorded valuation allowances to reduce our deferred tax assets to estimated realizable value. We review our deferred tax assets and valuation allowance requirements quarterly. If we are unable to demonstrate that it is more likely than not that we will not be able to generate sufficient future taxable income to realize the net carrying value of deferred tax assets, we will record a valuation allowance to reduce the deferred tax assets to estimated realizable value, which could result in a material income tax charge. As part of our review, we consider positive and negative evidence, including cumulative results of recent years.

Risks related to owning our common stock**The market price of our common stock may be volatile.**

Our stock price has historically been volatile. During the period from January 1, 2018 to December 31, 2020, the trading price of our common stock ranged from \$6.36 to \$14.15. Many factors may cause the market price of our common stock to fluctuate, including variations in our quarterly results of operations; the introduction of new products and services by us or our competitors; changing needs of military customers; changes in estimates of our performance or recommendations by securities analysts; the hiring or departure of key personnel; acquisitions or strategic alliances involving us or our competitors; market conditions in our industries; and the global macroeconomic and geopolitical environment.

Broad market fluctuations may adversely affect the market price of our common stock. When the market price of a company's stock drops significantly, stockholders often institute securities litigation against that company. Any such litigation could cause us to incur significant expenses defending against the claim, divert the time and attention of our management and result in significant damages.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

The following table provides information about our principal facilities as of December 31, 2020.

Location	Type	Segment	Principal Uses	Approximate Square Footage	Ownership	Lease Expiration
Middletown, Rhode Island	Office	Both	Corporate headquarters, research and development, sales and service, marketing and administration	75,000	Owned	—
Middletown, Rhode Island	Plant and warehouse	MC	Manufacturing and warehousing (mobile connectivity products)	75,300	Owned	—
Tinley Park, Illinois	Plant and warehouse	IN	Manufacturing, warehousing, research and development (inertial navigation products)	101,000	Owned	—
Kokkedal, Denmark	Office and warehouse	MC	European headquarters, sales, marketing and support	11,000	Leased	Upon 3 month notice

Both- mobile connectivity segment and inertial navigation segment

MC- mobile connectivity segment

IN- inertial navigation segment

ITEM 3. Legal Proceedings

From time to time, we are involved in litigation incidental to the conduct of our business. In the ordinary course of business, we are a party to inquiries, legal proceedings and claims including, from time to time, disagreements with vendors and customers.

ITEM 4. Mine Safety Disclosures

Not applicable.

PART II**ITEM 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities**

Market Information. Our common stock trades on the NASDAQ Global Select Market under the symbol “KVHI.”

The following table provides, for the periods indicated, the high and low sale prices for our common stock as reported on the NASDAQ Global Select Market.

	High	Low
Year Ended December 31, 2020:		
First quarter	\$ 11.36	\$ 6.36
Second quarter	10.16	7.78
Third quarter	9.76	7.38
Fourth quarter	11.86	8.52
Year Ended December 31, 2019:		
First quarter	\$ 11.89	\$ 10.01
Second quarter	10.92	9.09
Third quarter	11.10	8.64
Fourth quarter	11.64	9.37

Stockholders. As of February 22, 2021, we had 68 holders of record of our common stock. This number does not include stockholders for whom shares were held by a nominee or in “street” name.

Dividends. We have never declared or paid cash dividends on our capital stock, and we have no plan to pay any cash dividends in the foreseeable future. We currently intend to retain any future earnings to finance our operations and future growth.

Issuer Purchases of Equity Securities. On October 4, 2019, our Board of Directors authorized a share repurchase program pursuant to which we were authorized to purchase up to one million shares of our common stock. The program expired on October 4, 2020. Under the repurchase program, we, at management’s discretion, were previously authorized to repurchase shares on the open market from time to time, in privately negotiated transactions or block transactions, or through an accelerated repurchase agreement.

In January 2020, we repurchased 35,256 shares of common stock in open market transactions at a cost of approximately \$0.4 million. The total amount we repurchased under the October 4, 2019 repurchase program was 150,272 shares of common stock at an approximate cost of \$1.7 million. Except as noted above, there were no other repurchase programs outstanding during 2020.

During the fourth quarter of 2020, we did not repurchase any shares under the October 4, 2019 repurchase program, and no vested restricted shares were surrendered in satisfaction of tax withholding obligations.

ITEM 6. Removed and reserved.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis should be read in conjunction with the other financial information and consolidated financial statements and related notes appearing elsewhere in this annual report. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a variety of factors, including those discussed under the heading "Item 1A. Risk Factors" and elsewhere in this annual report.

Overview

We design, develop, manufacture and market mobile connectivity products and services for the marine and land mobile markets, and inertial navigation products for commercial and defense markets. Our reporting segments are as follows:

- the mobile connectivity segment and
- the inertial navigation segment

Through these segments, we manufacture and sell our solutions in a number of major geographic areas, including internationally. We generate a majority of our revenues from various international locations, primarily consisting of Canada, Europe (both inside and outside the European Union), Africa, Asia/Pacific, and the Middle East.

Mobile Connectivity Segment

Our mobile connectivity segment offers satellite communications products and services. Our mobile connectivity products enable customers to receive voice and Internet services and live digital television via satellite services in marine vessels, recreational vehicles, buses and automobiles. We sell and lease our mobile connectivity products through an extensive international network of dealers and distributors. We also sell and lease products directly to end users.

Our mobile connectivity service sales include sales of satellite voice and Internet airtime services, engineering services provided under development contracts, sales from product repairs, and extended warranty sales. Our mobile connectivity service sales also include our distribution of entertainment, including news, sports, music, and movies, to commercial and leisure customers in the maritime, hotel, and retail markets through KVH Media Group. We typically recognize revenue from media content sales ratably over the period of the service contract. We provide, for monthly fixed fees and usage-based fees, satellite connectivity services for broadband Internet, data and Voice over Internet Protocol (VoIP) service to our TracPhone V-series customers. We also earn monthly usage fees for third-party satellite connectivity for voice, data and Internet services to our Inmarsat and Iridium customers who choose to activate their subscriptions with us. As a percentage of total revenue, our service sales were 59% in 2020 and 61% in 2019.

Within the mobile connectivity segment, our marine leisure business is highly seasonal, and seasonality can also impact our commercial marine business. Historically, we have generated the majority of our marine leisure product revenues during the first and second quarters of each year, and these revenues typically decline in the third and fourth quarters of each year, compared to the first two quarters. Temporary suspensions of our airtime services typically increase in the third and fourth quarters of each year as boats are placed out of service during the winter months.

Impairment Charge – KVH Media Group

The COVID-19 pandemic has impacted various aspects of our operations, and we have been monitoring the impact of this global crisis carefully throughout the year. We have particularly monitored the operations of KVH Media Group, which depends heavily on travel and travel-related industries. The revenues and cash flows of KVH Media Group have been significantly impacted by the global reduction in travel since the start of the pandemic. Prior to our annual impairment test in the fourth quarter of 2020, based on our quarterly review of the impact of this global crisis on our forecasted revenues and cash flows, there was no indication of impairment to the carrying value of goodwill or other intangible assets. However, in the fourth quarter of 2020, there were increases in the number of reported COVID-19 cases, and substantial shutdowns were reinstated in the United States, UK and Europe, which caused continued disruptions to our KVH Media Group business as the global travel and related industries remained at historically depressed levels. In response to the impact of the pandemic, particularly with respect to our KVH Media business, during our annual budgeting and long-term planning process, we conducted detailed discussions with many of our largest customers in the KVH Media Group to validate our assumptions, which indicated further expected delays in recovery, and certain areas of the KVH Media business that may not recover completely or at all. Accordingly, we updated our long-term revenue and cash flow forecast to reflect these most recent observations. Based on our other long-lived asset impairment analysis and annual goodwill impairment test, we recognized an intangible asset impairment charge of \$1.8 million and a goodwill impairment charge of \$8.7 million for the year ended December 31, 2020 related to KVH Media Group. Please see Note 1(k) for additional information.

COVID-19 Global Pandemic

The COVID-19 pandemic continues to disrupt businesses around the world and has resulted in a global economic downturn. The impact of the pandemic on our operating results began in the first quarter of 2020 and continued throughout the year, particularly in areas of our business impacted by global commerce (for example, maritime shipping, travel and leisure). We do not know how long the pandemic will continue or what the ongoing economic impact will be on our business. The areas of our business most at risk of being negatively impacted by the prolonged continuation of this crisis include our mobile connectivity product and service sales, as commercial customers continue to delay acquiring mini-VSAT systems due to the global reduction in maritime shipping, and our media business, due to the severe restrictions on domestic and international travel. Similarly, our inertial navigation product sales have been and may continue to be negatively impacted as domestic and foreign customers decide to conserve cash in their own businesses in the face of the prolonged continuation of the crisis. In response to these significant uncertainties, in the second quarter of 2020 we undertook multiple steps to mitigate the impact of the pandemic on our business, including a comprehensive reduction in salaries and wages and the elimination of most discretionary expenditures, including capital expenditures. As part of our mitigation efforts, we applied for, and received, assistance made available by the United States government through the Paycheck Protection Program (PPP) under the Coronavirus Aid, Relief, and Economic Security Act (the CARES Act). At the beginning of the fourth quarter, we restored salaries for all of our employees to 100% of the pre-reduction levels, although we continue to limit discretionary spending. We have deferred annual salary increases for the first half of 2021.

Sale of Videotel - Discontinued Operations

In May 2019, we sold our Videotel business, which provided eLearning computer-based training, to an affiliate of Oakley Capital, a UK company, for \$89.4 million in cash, on a cash-free, debt-free basis, subject to a working capital adjustment. We made a bridge loan to the purchaser and received payment of the initial purchase price on June 21, 2019. We determined that the sale met the requirements for reporting as discontinued operations in accordance with ASC 205-20. Accordingly, we have classified the results of the Videotel business as discontinued operations for all periods presented. In December 2019, we finalized the working capital adjustment, which reduced the proceeds from the sale of Videotel to \$88.4 million. Please see Notes 1 and 18 of our consolidated financial statements for further discussion.

Inertial Navigation Segment

Our inertial navigation segment offers precision fiber optic gyro (FOG)-based systems that enable platform and optical stabilization, navigation, pointing, and guidance. Our inertial navigation products also include tactical navigation systems that provide uninterrupted access to navigation and pointing information in a variety of military vehicles, including tactical trucks and light armored vehicles. Our inertial navigation products are sold directly to U.S. and foreign governments and government contractors, as well as through an international network of authorized independent sales representatives. In addition, our inertial navigation products are used in numerous commercial products, such as navigation and positioning systems for various applications including precision mapping, dynamic surveying, autonomous vehicles, train location control and track geometry measurement systems, industrial robotics and optical stabilization. Our inertial navigation service sales include engineering services provided under development contracts, product repairs and extended warranty sales.

Summary of Net Sales

The following table provides, for the periods indicated, our sales by segment for our continuing operations:

	Year Ended December 31,	
	2020	2019
(in thousands)		
Mobile connectivity ⁽¹⁾	\$ 119,453	\$ 122,015
Inertial navigation	39,280	35,878
Net sales	<u>\$ 158,733</u>	<u>\$ 157,893</u>

(1)- Mobile connectivity net sales for 2019 include a \$1.4 million favorable adjustment to correct an immaterial prior period accounting error related to the implementation and application of ASC 606, *Revenue from Contracts with Customers* (ASC 606). See Note 11 of our consolidated financial statements for more information.

Product sales within the mobile connectivity segment accounted for 18% and 20% of our consolidated net sales for 2020 and 2019, respectively. Sales of mini-VSAT Broadband airtime service accounted for 51% and 48% of our consolidated net sales for 2020 and 2019, respectively.

Within our inertial navigation segment, net sales of FOG-based guidance and navigation systems accounted for 16% of our consolidated net sales for both 2020 and 2019.

No other single product class accounted for 10% or more of consolidated net sales. No individual customer accounted for 10% or more of our consolidated net sales for 2020 or 2019.

We operate in a number of major geographic areas across the globe. We generate our international net sales, based upon customer location, primarily from customers located in Canada, Europe, Africa, Asia/Pacific, the Middle East, and India. Our international net sales totaled 64% and 54% of our consolidated net sales for 2020 and 2019, respectively. No individual foreign country represented 10% or more of our consolidated net sales for 2020 and 2019. See Note 12 to our consolidated financial statements for more information on our segments.

Customer-Funded Research and Development

In addition to our internally funded research and development efforts, we also conduct research and development activities that are funded by our customers. These activities relate primarily to engineering studies, surveys, prototype development, program management, and standard product customization. In accordance with accounting principles generally accepted in the United States of America, we account for customer-funded research as service revenue, and we account for the associated research and development costs as costs of service and product sales. As a result, customer-funded research and development are not included in the research and development expense that we present in our statement of operations. The following table presents our total annual research and development effort, representing the sum of research costs of service and product sales and the operating expense of research and development as described in our statement of operations. Our management believes this information is useful because it provides a better understanding of our total expenditures on research and development activities.

	Year Ended December 31,	
	2020	2019
(in thousands)		
Research and development expense presented in the statement of operations	\$ 15,799	\$ 15,926
Costs of customer-funded research and development included in costs of service sales	2,935	4,373
Total consolidated statements of operations expenditures on research and development activities	<u>\$ 18,734</u>	<u>\$ 20,299</u>

Results of Operations

The following table provides, for the periods indicated, certain financial data relating to our continuing operations expressed as a percentage of net sales:

	Year Ended December 31,	
	2020	2019⁽¹⁾
Sales:		
Product	40.7 %	39.2 %
Service	59.3	60.8
Net sales	100.0	100.0
Costs and expenses:		
Costs of product sales	26.2	27.2
Costs of service sales	37.5	38.8
Research and development	10.0	10.1
Sales, marketing and support	18.8	21.2
General and administrative	15.4	16.1
Goodwill impairment charge	5.5	—
Intangible asset impairment charge	1.1	—
Total costs and expenses	114.5	113.4
Loss from operations	(14.5)	(13.4)
Interest income	0.6	1.3
Interest expense	—	0.6
Other income, net	0.1	0.1
Loss from continuing operations before income taxes expense (benefit)	(13.8)	(12.6)
Income tax expense (benefit) from continuing operations	0.1	(2.5)
Net loss from continuing operations	(13.9)%	(10.1)%

(1) Our product sales, costs of product sales, sales, marketing and support expense, income tax benefit and net loss from continuing operations for 2019 presented as a percentage of net sales include adjustments to correct immaterial prior period accounting errors related to the implementation and application of ASC 606. See Note 11 of our consolidated financial statements for more information.

Years ended December 31, 2020 and 2019**Net Sales**

As discussed further under the heading "Segment Discussion" below, product sales increased \$2.7 million, or 4%, to \$64.6 million in 2020 from \$61.9 million in 2019, primarily due to an increase in inertial navigation product sales of \$6.5 million, partially offset by a decrease in mobile connectivity product sales of \$3.8 million. Service sales for 2020 decreased \$1.9 million, or 2%, to \$94.1 million from \$96.0 million in 2019 primarily due to a decrease in inertial navigation service sales of \$3.1 million, partially offset by an increase in mobile connectivity service sales of \$1.2 million.

Costs of Sales

Costs of sales consists of costs of product sales and costs of service sales. Costs of sales decreased in 2020 to \$101.1 million from \$104.1 million in 2019. The decrease in costs of sales was primarily driven by a \$1.7 million decrease in costs of service sales and a \$1.3 million decrease in costs of product sales. As a percentage of net sales, costs of sales was 64% and 66% for 2020 and 2019, respectively.

Our costs of product sales consist primarily of materials, manufacturing overhead, and direct labor used to produce our products. For 2020, costs of product sales decreased by \$1.3 million, or 3%, to \$41.6 million from \$42.9 million in 2019. As a percentage of product sales, costs of product sales were 64% and 69% for 2020 and 2019, respectively. Mobile connectivity costs of product sales decreased by \$4.4 million, or 17%, primarily due to a \$3.8 million decrease in our marine mobile connectivity cost of product sales and a \$0.6 million decrease in our land mobile connectivity costs of product sales. Mobile connectivity costs of product sales as a percentage of mobile connectivity product sales were 77% and 82% for 2020 and 2019, respectively. Inertial navigation costs of product sales increased by \$3.1 million, or 18%, primarily due to a \$1.7 million increase in our TACNAV costs of product sales, a \$0.7 million increase in FOG and OEM costs of product sales and a \$0.7 million increase in expensed material and other manufacturing period costs. Inertial navigation costs of product sales as a percentage of inertial navigation product sales was 55% and 56% for 2020 and 2019, respectively.

Our costs of service sales consist primarily of satellite service capacity, depreciation, service network overhead expense associated with our mini-VSAT Broadband network infrastructure, direct network service labor, Inmarsat service costs, product installation costs, engineering and related direct costs associated with customer-funded research and development, media materials and distribution costs, and service repair materials. For 2020, costs of service sales decreased by \$1.7 million, or 3%, to \$59.5 million from \$61.3 million in 2019. As a percentage of service sales, costs of service sales were 63% and 64% for 2020 and 2019, respectively. Mobile connectivity costs of service sales decreased by \$1.0 million, or 2%, primarily due to a \$0.9 million decrease in costs of service sales for service activations, along with a \$0.8 million decrease in costs associated with contract engineering service revenue. These decreases were partially offset by a \$0.6 million increase in mini-VSAT airtime costs of service sales. Mobile connectivity costs of service sales as a percentage of mobile connectivity service sales were 62% and 63% for 2020 and 2019, respectively. Inertial navigation costs of service sales decreased by \$0.8 million, or 20%, primarily due to a decrease in contract engineering service revenues. Inertial navigation costs of service sales as a percentage of inertial navigation service sales was 124% and 70% for 2020 and 2019, respectively. The increase in costs of inertial navigation service sales was due to additional costs relating to an engineering and services development contract from a major U.S. defense contractor.

Operating Expenses

Research and development expense consists of direct labor, materials, external consultants, and related overhead costs that support our internally funded product development and product sustaining engineering activities. Research and development expense for 2020 decreased by \$0.1 million, or 1%, to \$15.8 million from \$15.9 million in 2019. The primary reason for the decrease in research and development expense was a \$0.5 million decrease in expensed materials, a \$0.4 million decrease in consulting fees, a \$0.2 million decrease in travel expenses and a \$0.2 million decrease in depreciation and amortization expense, partially offset by a \$1.4 million decrease in funded engineering expenses (which are reflected in costs of service sales rather than research and development expense). As a percentage of net sales, research and development expense was 10% in both 2020 and 2019.

Sales, marketing, and support expense consists primarily of salaries and related expenses for sales and marketing personnel, commissions for both in-house and third-party representatives, costs related to the co-development of certain content, other sales and marketing support costs such as advertising, literature and promotional materials, product service personnel and support costs, warranty-related costs and bad debt expense. Sales, marketing and support expense also includes the operating expenses of our sales office subsidiaries in Denmark, Singapore, Brazil, and Japan. Sales, marketing, and support expense decreased by \$3.6 million, or 11%, to \$29.8 million in 2020 from \$33.4 million in 2019. The decrease in sales, marketing and support expense resulted primarily from a \$1.2 million decrease in travel expenses, a \$1.1 million decrease in warranty expenses, a \$1.0 million decrease in marketing expenses, a \$0.9 million decrease in external commission expenses and a \$0.4 million decrease in salaries and associated compensation, partially offset by a \$0.5 million increase in bad debt and a \$0.3 million decrease in funded expenses. A portion of these cost savings were attributable to pandemic-related travel restrictions and other measures, and we expect that these expenses will begin to normalize as the pandemic recovery progresses. As a percentage of net sales, sales, marketing and support expense was 19% and 21% in 2020 and 2019, respectively.

General and administrative expense consists of costs attributable to management, finance and accounting, information technology, human resources, certain outside professional services, and other administrative costs. General and administrative expense for 2020 decreased by \$1.0 million, or 4%, to \$24.4 million from \$25.5 million for 2019. The decrease in general and administrative expense resulted primarily from a \$0.5 million decrease in salaries and associated compensation, a \$0.2 million decrease in bank fees, a \$0.2 million decrease in dues and subscriptions and a \$0.2 million decrease in travel expenses, partially offset by a \$0.2 million increase in legal and professional fees. As a percentage of net sales, general and administrative expense was 15% and 16% for 2020 and 2019, respectively.

Interest and Other Income, Net

Interest income relates to interest earned on our cash and cash equivalents, as well as from investments and our sale-type lease receivables. Interest income decreased by \$1.0 million to \$1.0 million from \$2.0 million for 2019. The decrease was primarily due to the interest received from Oakley Capital in connection with our sale of Videotel in 2019. Interest expense for 2020 decreased to less than \$0.1 million from \$1.0 million for 2019 primarily as a result of our repayment of all of our interest-bearing debt obligations during 2019. Other income, net for 2020 increased to \$0.2 million from other income, net of \$0.1 million for 2019 primarily due to a decrease in foreign exchange losses from our UK operations.

Income Tax Expense (Benefit)

Income tax expense for 2020 was \$0.2 million due to taxes related to income earned in foreign jurisdictions and no associated tax benefit related to losses incurred in the U.S. due to a full valuation allowance on our related deferred tax assets. Income tax benefit for 2019 was \$4.0 million which was primarily attributed to the recognition of the tax benefit sustained from losses on continuing operations in the U.S. which was required to negate the tax expense incurred under discontinued operations.

The effective tax rate for 2020 was (0.8)%. The primary driver of the difference between our effective tax rate as compared to the United States federal statutory rate was the impact of recording the valuation reserve against the U.S. deferred tax assets, which was partially offset by income taxed at lower foreign tax rates. The effective income tax rate of 20.0% for 2019 differs from the U.S. federal statutory rate due to the impact of recording a net valuation reserve on the tax benefit generated on U.S. net operating losses and tax credits, as well as the income from discontinued operations. This impact was offset by income taxed at lower foreign tax rates.

Discontinued Operations

During the second quarter of 2019, we sold our Videotel business for \$89.4 million in cash, on a cash-free, debt-free basis, subject to a working capital adjustment. We determined that the sale met the requirements for reporting as discontinued operations in accordance with ASC 205-20. Accordingly, we have classified the results of the Videotel business as discontinued operations for all periods presented. In December 2019, we finalized the working capital adjustment, which reduced the proceeds from the sale of Videotel to \$88.4 million. Please see Notes 1 and 18 of our consolidated financial statements for further information. Results for discontinued operations are as follows:

	Year Ended December 31,	
	2020	2019
Sales from discontinued operations	\$ —	\$ 5,769
Income from discontinued operations, net of tax	\$ —	\$ 49,264

Segment Discussion - Years ended December 31, 2020 and 2019

As noted above, we have classified our Videotel business as discontinued operations and have therefore excluded it from the segment information below. The Videotel business had previously been included in our mobile connectivity business segment.

Our net sales by segment for 2020 and 2019 were as follows:

	For the year ended December 31,		Change	
	2020	2019	2020 vs. 2019	
			\$	%
	<i>(dollars in thousands)</i>			
Mobile connectivity sales				
Product ⁽¹⁾	\$ 27,863	\$ 31,623	\$ (3,760)	(12)%
Service	91,590	90,392	1,198	1 %
Net sales	\$ 119,453	\$ 122,015	\$ (2,562)	(2)%
Inertial navigation sales				
Product	\$ 36,756	\$ 30,302	\$ 6,454	21 %
Service	2,524	5,576	(3,052)	(55)%
Net sales	\$ 39,280	\$ 35,878	\$ 3,402	9 %

(1) Mobile connectivity product sales for 2019 include a \$1.4 million favorable adjustment to correct an immaterial prior period accounting error related to the implementation and application of ASC 606. See Note 11 of our consolidated financial statements for more information.

Operating (loss) income by segment for 2020 and 2019 were as follows:

	For the year ended December 31,		Change	
	2020	2019	2020 vs. 2019	
			\$	%
	<i>(dollars in thousands)</i>			
Mobile connectivity ⁽¹⁾⁽²⁾	\$ (10,071)	\$ (5,569)	\$ (4,502)	(81)%
Inertial navigation	4,799	2,961	1,838	62 %
	\$ (5,272)	\$ (2,608)	\$ (2,664)	(102)%
Unallocated	(17,665)	(18,488)	823	4 %
Loss from operations	\$ (22,937)	\$ (21,096)	\$ (1,841)	(9)%

(1) Mobile connectivity loss from operations for 2019 include a \$0.3 million unfavorable adjustment to correct an immaterial prior period accounting error related to the implementation and application of ASC 606. See Note 11 of our consolidated financial statements for more information.

(2) Mobile connectivity loss from operations for 2020 includes a \$10.5 million goodwill and intangible asset impairment charge. See Note 1(k) and Note 9 for more information.

Mobile Connectivity Segment

Net sales in the mobile connectivity segment decreased by \$2.6 million, or 2%, in 2020 as compared to 2019. Mobile connectivity product sales decreased by \$3.8 million, or 12%, to \$27.9 million in 2020 from \$31.6 million in 2019. The decrease was primarily the result of a \$3.0 million decrease in TracVision product sales, a \$0.8 million decrease in land mobile product sales and a \$0.3 million decrease in product sales of accessories. This was partially offset by a \$0.4 million increase in mini-VSAT product sales.

Mobile connectivity service sales increased by \$1.2 million, or 1%, to \$91.6 million in 2020 from \$90.4 million in 2019. The increase was primarily due to a \$5.0 million increase in mini-VSAT service sales, driven by a 4% increase in subscribers, primarily as a result of AgilePlans, and a \$0.9 million one-time amount relating to a favorable resolution of a contractual matter with a particular customer. Offsetting this increase was a \$2.7 million decrease in our content service sales, which resulted primarily from service suspensions during the pandemic, a \$0.7 million decrease in contracted engineering service revenue and a \$0.4 million decrease in service repair revenue.

Operating earnings for the mobile connectivity segment decreased \$4.5 million in 2020 as compared to 2019. This decrease was primarily due to the impairment of goodwill and other intangible assets of \$10.5 million in 2020 in KVH Media Group. This decrease was partially offset by an increase in sales less associated costs of \$2.8 million, combined with a decrease in mobile connectivity operating expenses, excluding impairment, of \$3.2 million in 2020. The decrease in operating expenses was due to a \$1.1 million decrease in travel expenses, a \$0.9 million decrease in employee salaries and benefits, a \$0.9 million decrease in marketing expenses, a \$0.8 million decrease in warranty expenses and a \$0.3 million decrease in expensed materials, partially offset by a \$0.6 million increase in bad debt expense.

Inertial Navigation Segment

Net sales in the inertial navigation segment increased \$3.4 million, or 9%, in 2020 as compared to 2019. Inertial navigation product sales increased \$6.5 million, or 21%, to \$36.8 million in 2020 from \$30.3 million in 2019. The primary driver of the increase was a \$6.1 million, or 125%, increase in TACNAV product sales, along with an increase of \$0.3 million, or 1%, of sales of our FOG and OEM products. Inertial navigation service sales decreased \$3.1 million, or 55%, to \$2.5 million in 2020 from \$5.6 million in 2019. The primary reason for the decrease was a \$3.1 million, or 61%, decrease in contracted engineering service revenues.

Operating earnings for the inertial navigation segment increased \$1.8 million in 2020 as compared to 2019. This increase was primarily due to the increase in sales less associated costs of \$1.1 million, a \$0.7 million decrease in external commissions, a \$0.4 million decrease in travel expenses and a \$0.3 million decrease in warranty expenses. This was partially offset by a \$0.6 million increase in salaries and associated compensation and a \$0.5 million decrease in funded engineering expenses.

Unallocated

Certain corporate-level costs have not been allocated because they are not attributable to either segment. These costs primarily consist of broad corporate functions, including executive, legal, finance, information technology, and costs associated with corporate actions.

Unallocated operating loss decreased \$0.8 million, or 4%, in 2020 compared to 2019. The decrease in unallocated operating loss was primarily the result of a \$0.5 million decrease in salaries and associated compensation and a \$0.3 million decrease in bank fees.

Critical Accounting Policies and Significant Estimates

The discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, revenues and expenses, and related disclosure at the date of our financial statements. Our significant accounting policies are summarized in Note 1 to our consolidated financial statements. We believe that our accounting policies for goodwill, intangible assets, and other long-lived assets are the only accounting policies critical to an understanding and evaluation of our financial results for 2020, as discussed below.

Goodwill, Intangible Assets, and other Long-Lived Assets

We follow ASC Update No. 2017-04, Intangibles-Goodwill and Other (Topic 350): Simplifying the Test of Goodwill Impairment. ASC 350 requires the completion of a goodwill impairment test at least annually based on either an optional qualitative assessment or a quantitative analysis comparing the estimated fair value of a reporting unit to its carrying value as of the test date. Any impairment charges would be based on the quantitative analysis. Prior to 2020, we have not recorded or incurred goodwill impairment charges.

For the October 1, 2019 test, we performed a qualitative assessment of goodwill impairment and concluded that it was more likely than not that the reporting units' fair values exceeded their carrying values. Accordingly, it was not necessary for us to perform the quantitative analysis.

For the October 1, 2020 test, however, due to the uncertainty that the global pandemic presented during 2020, we determined that we should perform a quantitative analysis of goodwill impairment. We performed this full quantitative analysis in the fourth quarter of 2020 in conjunction with our annual budgeting and long-term planning cycle. The last full quantitative analysis was completed in 2017. The COVID-19 pandemic has impacted various aspects of our operations, and we have been monitoring the impact of this global crisis carefully throughout the year. We have particularly monitored the operations of KVH Media Group which depends heavily on travel and travel-related industries. The revenues and cash flows of KVH Media Group have been significantly impacted by the global reduction in travel since the start of the pandemic. Prior to our annual impairment test in the fourth quarter of 2020, based on our quarterly review of the impact of this global crisis on our forecasted revenues and cash flows, there was no indication of impairment to the carrying value of goodwill or other intangible assets. However, in the fourth quarter of 2020, there were increases in the number of reported COVID-19 cases, and substantial shutdowns were reinstated in the United States, UK and Europe, which caused continued disruptions to our KVH Media Group business as the global travel and related industries remained at historically depressed levels. In response to the impact of the pandemic, particularly with respect to our KVH Media Group business, during our annual budgeting and long-term planning process, we conducted detailed discussions with many of our largest customers in the KVH Media Group to validate our assumptions, which indicated further expected delays in recovery, and certain areas of the KVH Media Group business that may not recover completely or at all. Accordingly, in connection with our annual goodwill assessment, we updated our long-term revenue and cash flow forecast to reflect these most recent observations, which were used in our annual goodwill test. With the assistance of our valuation specialists, we utilized an income approach and market approach to estimate the fair value of our reporting units. We believe that the assumptions we used to estimate the fair value of our reporting units were reasonable. As an additional corroborative test of the reasonableness of those assumptions, we completed a reconciliation of our market capitalization and overall enterprise value to the fair value of all of our reporting units as of October 1, 2020. We estimated that, as of October 1, 2020, the fair value of our mobile broadband reporting unit exceeded its carrying value by 18%; however, the carrying value of our KVH Media Group reporting unit exceeded its fair value by \$10.2 million, which signified that an impairment had occurred and identified a triggering event to review our other long-lived assets for impairment. In accordance with ASC 360-10, *Property, Plant and Equipment – Impairment or Disposal of Long-Lived Assets* (ASC 360), with regard to our long-lived assets, we performed an undiscounted cash flow analysis and concluded that the carrying value of the asset group was not recoverable. Accordingly, we then performed an analysis to estimate the fair value of the other long-lived assets and recognized impairment charge of \$1.8 million against the distribution rights intangible asset, the amount by which the carrying value of the asset group's other long-lived assets exceeded their estimated fair value, and a reduction in the associated deferred tax liability of \$0.3 million. As a result, we recognized an impairment charge to KVH Media Group's goodwill in the amount of \$8.7 million, the remaining amount by which the carrying value exceeded its fair value. After recording this impairment, our consolidated balance sheet continues to include \$8.8 million of goodwill and other intangible assets, of which \$4.4 million relates to KVH Media Group.

A negative trend of operating results or material changes to forecasted operating results could result in the requirement for additional interim goodwill impairment tests and the potential of future goodwill impairment charges, which could be material. See Note 9 for further discussion of goodwill and intangible assets.

Liquidity and Capital Resources

Our primary liquidity needs have been to fund general business requirements, including working capital requirements, capital expenditures, and, until recently, interest payments and debt repayments. In recent years, we have funded our operations primarily from cash flows from operations, an asset sale, bank financings, proceeds received from exercises of stock options and proceeds from the issuance of stock.

In May 2020, we received a \$6.9 million loan (the PPP Loan) from Bank of America, N.A. under the Paycheck Protection Program, which was established under the Coronavirus Aid, Relief, and Economic Security Act.

We believe that our cash and cash equivalents as of December 31, 2020 and our estimated cash flows from operations will be sufficient to fund our operations, anticipated capital expenditures, and debt repayment obligations through at least the next twelve months based on our current operating plans. However, as the need or opportunity arises, we may seek to raise additional capital through public or private sales of securities or through additional debt financing. There are no assurances that we will be able to obtain any additional funding or that such funding will be available on terms acceptable to us, or at all.

We believe that our primary long-term capital requirements relate to servicing and repaying our satellite service capacity and equipment lease obligations. At December 31, 2020, we had \$6.9 million of outstanding debt obligations related to the PPP loan and had outstanding non-cancellable satellite service capacity and other lease obligations with future minimum payments of \$88.1 million.

Our ability to make payments on our satellite service capacity and equipment lease obligations, as well as our ability to fund planned capital expenditures, will depend on our ability to generate cash in the future. Our ability to generate cash in the future will depend upon, among other things, the performance of our operating segments and general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control.

As of December 31, 2020, we had \$37.7 million in cash, cash equivalents, and marketable securities, of which \$1.8 million in cash equivalents was held in local currencies by our foreign subsidiaries. Our foreign subsidiaries held no marketable securities as of December 31, 2020. As of December 31, 2020, we had \$60.3 million in working capital.

Operating Activities

Operating activities used \$3.1 million of net cash in 2020 and used \$14.2 million of net cash in 2019, a decrease in net cash used in operating activities of \$11.1 million. Although our net income decreased \$55.2 million to a net loss of \$21.9 million in 2020 from net income of \$33.3 million in 2019, our net loss in 2020 reflected non-cash deductions of \$26.5 million, whereas our net income in 2019 reflected net non-cash additions of \$37.7 million. The \$11.1 million decrease in net cash used in operating activities also reflected a \$3.2 million increase in cash inflows relating to accounts receivable, a \$2.2 million decrease in cash outflows related to accrued compensation, product warranty, and others, and a \$0.6 million decrease in cash outflows related to other non-current assets and non-current contract assets. Partially offsetting these items were a \$2.0 million decrease in cash inflows related to deferred revenue, contract liabilities and long-term contract liabilities, a \$1.4 million increase in cash outflows related to accounts payable, and a \$0.7 million increase in cash outflows related to inventories.

Investing Activities

Net cash used in investing activities for 2020 was \$9.3 million as compared to net cash provided by investing activities of \$46.0 million for 2019. The \$55.3 million decrease in net cash provided by investing activities was primarily the result of the receipt of \$88.4 million in net proceeds from the sale of Videotel in May 2019 and a \$1.5 million increase in capital expenditures. Partially offsetting these items was a \$34.6 million decrease in cash outflows relating to the purchase and sale of marketable securities.

Financing Activities

Net cash provided by financing activities for 2020 was \$7.1 million as compared to net cash used in financing activities in 2019 of \$30.8 million. The \$37.9 million increase in net cash provided by financing activities is primarily attributable to the \$36.4 million difference between cash inflows of \$6.9 million from long-term debt in 2020 compared to net cash outflows of \$29.5 million from the repayment of line of credit, term note and other long-term borrowings in 2019, a \$0.9 million decrease in cash outflows relating to the repurchase of treasury stock and a \$0.5 million increase in cash inflows relating to proceeds from stock options exercises and the employee stock purchase plan.

Borrowing Arrangements

Paycheck Protection Program Loan

In May 2020, we received a \$6.9 million loan (the PPP Loan) from Bank of America, N.A., under the Paycheck Protection Program, which was established under the Coronavirus Aid, Relief, and Economic Security Act (as modified by the Paycheck Protection Flexibility Act of 2020, the CARES Act) and is administered by the U.S. Small Business Administration. We believe we have used the proceeds from the PPP Loan in accordance with the requirements of the CARES Act, primarily to fund payroll costs and to retain workers.

The term of the PPP Loan is two years from the funding date of the PPP Loan. The interest rate on the PPP Loan is 1.00%. Under the terms of the PPP Loan, interest accrues from the funding date of the PPP Loan but is deferred until the lender determines the amount of loan forgiveness, but the deferral period will end if we fail to apply for loan forgiveness within ten months after the loan forgiveness covered period. Principal and interest on the PPP Loan will be payable in monthly installments in accordance with the repayment letter when forgiveness has been determined. The promissory note evidencing the PPP Loan contains various events of default relating to, among other things, insolvency, bankruptcy or the like, payment defaults under the PPP Loan or other loans by the lender, certain defaults under other indebtedness, breach of representations and warranties, the occurrence of a material adverse event, changes in ownership, or breach of other provisions of the promissory note. Upon an event of default, all principal and accrued interest on the PPP Loan and any and all other loans made by the lender to us would, at the lender's option, become immediately due and payable. We agreed that we will not receive any other loan under the Paycheck Protection Program.

Pursuant to the terms of the CARES Act, we can apply for and may be granted forgiveness for all or a portion of the PPP Loan, if and to the extent that we satisfy all of the requirements applicable to forgiveness of the PPP Loan. Such forgiveness will be determined in part based on the use of PPP Loan proceeds in accordance with the terms of the CARES Act during the 24-week period after loan origination and the maintenance or achievement of certain employee and compensation levels. No decision has been made as to whether we will apply for forgiveness and we can provide no assurance that all or any portion of the PPP Loan will be forgiven should we apply for forgiveness.

Term Note and Line of Credit

Effective October 30, 2018, we entered into an amended and restated three-year senior secured credit facility agreement (the 2018 Credit Agreement) with Bank of America, N.A., as Administrative Agent, and the lenders named from time to time as parties thereto (the 2018 Lenders), for an aggregate amount of up to \$42.5 million, including a term loan (2018 Term Loan) of \$22.5 million and a reducing revolving credit facility (the 2018 Revolver) of up to \$20.0 million initially and reducing to \$15.0 million on December 31, 2019, each to be used for general corporate purposes, including the refinancing of indebtedness under our then-outstanding senior credit facility agreement. Our obligations under the 2018 Credit Agreement are secured by substantially all of our assets and the pledge of equity interests in certain of our subsidiaries.

On June 27, 2019, we used the proceeds of the sale of Videotel to repay in full the then-outstanding balance of \$21.4 million under the 2018 Term Loan and to repay \$13.0 million of the then-outstanding balance under the 2018 Revolver. The 2018 Revolver remained at \$20.0 million through December 31, 2019 and then reduced to \$15.0 million for the remaining term of the 2018 Credit Agreement. On October 30, 2021, the entire principal balance of any outstanding loans under the 2018 Revolver will be due and payable, together with all accrued and unpaid interest, fees and any other amounts due and payable under the 2018 Credit Agreement. As of December 31, 2020, no amounts were outstanding under the 2018 Revolver.

Borrowings of up to \$15.0 million under the 2018 Revolver are subject to the satisfaction of various conditions precedent at the time of each borrowing, including the continued accuracy of our representations and warranties and the absence of any default under the 2018 Credit Agreement. As of December 31, 2020, we are only able to draw on \$9.4 million of the \$15.0 million facility due to covenant restrictions.

The 2018 Credit Agreement contains two financial covenants, a maximum Consolidated Leverage Ratio and a minimum Consolidated Fixed Charge Coverage Ratio, each as defined in the 2018 Credit Agreement. The Consolidated Leverage Ratio could not exceed 2.50:1.00 through December 31, 2019 and may not exceed 2.00:1.00 after December 31, 2020. The Consolidated Fixed Charge Coverage Ratio may not be less than 1.25:1.00.

On July 30, 2020, we amended the 2018 Credit Agreement to reflect the incurrence of the PPP loan. Under the amended agreement, the principal and interest on the PPP loan are not included in the maximum Consolidated Leverage Ratio or the minimum Consolidated Fixed Charge Coverage Ratio calculations except as to any portion of the PPP Loan that is not ultimately forgiven.

The 2018 Credit Agreement imposes certain other affirmative and negative covenants, including without limitation covenants with respect to the payment of taxes and other obligations, compliance with laws, performance of material contracts, creation of liens, incurrence of indebtedness, investments, dispositions, fundamental changes, restricted payments, changes in the nature of our business, transactions with affiliates, corporate and accounting changes, and sale and leaseback arrangements.

Mortgage Loan

We previously had a mortgage loan (Mortgage Loan) related to our headquarters facility in Middletown, Rhode Island. On April 1, 2019, on the Mortgage Loan's original termination date, we repaid in full the outstanding balance of \$2.6 million. As discussed in Note 17 to the consolidated interim financial statements, in April 2010 we entered into two interest rate swap agreements that were intended to hedge our mortgage interest obligations over the term of the Mortgage Loan by fixing the interest rates specified in the Mortgage Loan to 5.91% for half of the principal amount outstanding as of April 1, 2010 and 6.07% for the remaining half. Both interest rate swap agreements were also settled upon repayment of the Mortgage Loan.

Other Matters

We intend to continue to invest in the mini-VSAT Broadband network on a global basis. As part of the future potential capacity expansion, we would plan to seek to acquire additional satellite capacity from satellite operators, expend funds to seek regulatory approvals and permits, develop product enhancements in anticipation of the expansion, and hire additional personnel. From time to time we have entered into multi-year agreements to lease satellite capacity, and we have also purchased numerous satellite hubs to support the added capacity. These transactions can involve millions of dollars, and from time to time we have entered into secured lending arrangements to finance them.

On October 4, 2019, our Board of Directors authorized a share repurchase program pursuant to which we were authorized to purchase up to one million shares of our common stock. The program expired on October 4, 2020. Under the repurchase program, at management's discretion, we were authorized to repurchase shares on the open market from time to time, in privately negotiated transactions or block transactions, or through an accelerated repurchase agreement. As of December 31, 2020, we had repurchased 150,272 shares of our common stock in open market transactions at a cost of approximately \$1.7 million.

Off-Balance Sheet Arrangements

As of December 31, 2020, except for certain satellite service capacity obligations that are not considered operating or financing leases under ASC 842, we did not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future material effect on our financial condition, changes in financial condition, revenues, expenses, results of operations, liquidity, capital expenditures or capital resources. Please see Note 6 for additional information on our satellite service capacity obligations.

Recently Issued Accounting Pronouncements

See Note 1 of our accompanying audited consolidated financial statements for a description of recently issued accounting pronouncements including the dates of adoption and effects on our results of operations, financial position and disclosures.

ITEM 7A. Quantitative and Qualitative Disclosure About Market Risk

Not applicable.

ITEM 8. Financial Statements and Supplementary Data

Our consolidated financial statements, together with the report of Grant Thornton LLP thereon, our independent registered public accounting firm, are presented after the signature page to this annual report. The report of Grant Thornton LLP on our internal control over financial reporting is included in Item 9A of this annual report.

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, which are designed to ensure that information required to be disclosed 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 Securities and Exchange Commission's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, our management has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2020, the end of the period covered by this annual report. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2020.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is the process designed by and under the supervision of our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our financial statements for external reporting in accordance with accounting principles generally accepted in the United States of America. Management has evaluated the effectiveness of our internal control over financial reporting using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013).

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, our management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2020 and concluded that it was effective.

Our independent registered public accounting firm, Grant Thornton LLP, has issued a report regarding the effectiveness of our internal control over financial reporting as of December 31, 2020, and that report is included in Item 9A in this annual report.

Evaluation of Changes in Internal Control over Financial Reporting

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, our management has evaluated changes in our internal control over financial reporting that occurred during the fourth quarter of 2020. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer did not identify any change in our internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Important Considerations

The effectiveness of our disclosure controls and procedures and our internal control over financial reporting is subject to various inherent limitations, including cost limitations, judgments used in decision making, assumptions about the likelihood of future events, the soundness of our systems, the possibility of human error, and the risk of fraud. Moreover, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions and the risk that the degree of compliance with policies or procedures may deteriorate over time. Because of these limitations, there can be no assurance that any system of disclosure controls and procedures or internal control over financial reporting will be successful in preventing all errors or fraud or in making all material information known in a timely manner to the appropriate levels of management.

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
KVH Industries, Inc.

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of KVH Industries, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2020, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2020, and our report dated March 3, 2021 expressed an unqualified opinion on those financial statements.

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.

/s/ GRANT THORNTON LLP

Boston, Massachusetts

March 3, 2021

ITEM 9B. Other Information

None.

PART III

We have omitted the information required in Part III of this annual report because we intend to include that information in our definitive proxy statement for our 2021 annual meeting of stockholders, which we expect to file before 120 days after the end of fiscal 2020. We incorporate the information required in Part III of this annual report by reference to our 2021 proxy statement.

ITEM 10. Directors, Executive Officers and Corporate Governance

Except as set forth below, the information required by this item is incorporated by reference to our 2021 proxy statement.

Our Board of Directors has adopted a Code of Business Conduct and Ethics that applies to our directors, executive officers and employees. Our Code of Business Conduct and Ethics can be found on our website, which is located at www.kvh.com. We intend to make all required disclosures concerning any amendments to or waivers from, our Code of Business Conduct and Ethics on our website. Any person may request a copy of the Code of Business Conduct and Ethics, at no cost, by writing to us at the following address: KVH Industries, Inc., 50 Enterprise Center, Middletown, Rhode Island, 02842, Attention: Investor Relations.

ITEM 11. Executive Compensation

The information required by this item is incorporated by reference to our 2021 proxy statement.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item is incorporated by reference to our 2021 proxy statement.

ITEM 13. Certain Relationships and Related Transactions and Director Independence

The information required by this item is incorporated by reference to our 2021 proxy statement.

ITEM 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to our 2021 proxy statement.

PART IV

ITEM 15. Exhibits and Financial Statement Schedules

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(a) 1.	Financial Statements	
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(a) 2.	Financial Statement Schedules	
	None.	
3.	Exhibits	

Exhibit No.	Description	Filed with this Form 10-K	Incorporated by Reference		Exhibit No.
			Form	Filing Date	
2.1	Share Purchase Agreement dated as of May 13, 2019 among KVH Industries, Inc., KVH Media Group Limited and Pelican Holdco Limited relating to the sale of the entire issued share capital of Super Dragon Limited and Videotel Marine Asia Limited		8-K	May 16, 2019	2.1
2.2	Tax Deed of Covenant dated as of May 13, 2019 among KVH Industries, Inc., KVH Media Group Limited and Pelican Holdco Limited relating to the sale of the entire issued share capital of Super Dragon Limited and Videotel Marine Asia Limited		8-K	May 16, 2019	2.2
3.1	Amended and Restated Certificate of Incorporation, as amended		10-Q	August 6, 2010	3.1
3.2	Amended and Restated Bylaws		10-Q	November 1, 2017	3.2
4.1	Specimen certificate for the common stock		10-K	March 2, 2018	4.1
4.2	Description of Capital Stock		8-K	August 4, 2020	4.1
*10.1	Amended and Restated 1996 Employee Stock Purchase Plan		DEF 14A	April 25, 2016	App. B
*10.2	Amended and Restated 2016 Equity and Incentive Plan		DEF 14A	April 29, 2020	App. A
*10.3	Form of Incentive Stock Option Agreement granted under the 2016 Equity and Incentive Plan		10-K	March 9, 2017	10.5
*10.4	Form of Non-Statutory Stock Option Agreement granted under the 2016 Equity and Incentive Plan		10-K	March 9, 2017	10.6
*10.5	Form of Restricted Stock Agreement granted under the 2016 Equity and Incentive Plan		10-K	March 9, 2017	10.7
*10.6	Policy Regarding Automatic Grants to Non-Employee Directors		10-Q	May 6, 2009	10.23

Exhibit No.	Description	Filed with this Form 10-K	Incorporated by Reference		
			Form	Filing Date	Exhibit No.
10.7	Amended and Restated Credit Agreement dated as of October 30, 2018 among KVH Industries, Inc., Bank of America, N.A., as Administrative Agent, Swingline Lender and L/C Issuer, and the Lenders party hereto		10-Q	October 31, 2018	10.1
10.8	Amended and Restated Security Agreement dated as of October 30, 2018 between KVH Industries, Inc. and Bank of America, N.A., as Administrative Agent		10-Q	October 31, 2018	10.2
10.9	Amended and Restated Pledge Agreement dated as of October 30, 2018 between KVH Industries, Inc. and Bank of America, N.A., as Administrative Agent with respect to KVH Industries A/S		10-Q	October 31, 2018	10.3
10.10	Amended and Restated Pledge Agreement dated as of October 30, 2018 between KVH Industries, Inc. and Bank of America, N.A., as Administrative Agent with respect to KVH Industries U.K. Limited		10-Q	October 31, 2018	10.4
10.11	Consent dated as of May 13, 2019 among KVH Industries, Inc., as Borrower, Bank of America, N.A., as Lender and Administrative Agent, and The Washington Trust Company, as Lender, under the Amended and Restated Credit Agreement dated as of October 30, 2018 among such parties		8-K	May 16, 2019	10.4
10.12	First Amendment to Amended and Restated Credit Agreement as of July 30, 2020 by and among KVH Industries, Inc., Bank of America, N.A., and The Washington Trust Company		10-Q	July 31, 2020	10.3
10.13	Cooperation Agreement, dated as of April 8, 2020, by and among KVH Industries, Inc., Vintage Capital Management, LLC, and Kahn Capital Management, LLC		8-K	April 9, 2020	10.1
10.14	Promissory Note dated as of May 1, 2020 and executed on May 3, 2020 by KVH Industries, Inc., in favor of Bank of America, N.A.		8-K	May 6, 2020	10.1
21.1	List of Subsidiaries	X			
23.1	Consent of Grant Thornton LLP	X			
31.1	Rule 13a-14(a)/15d-14(a) certification of principal executive officer	X			
31.2	Rule 13a-14(a)/15d-14(a) certification of principal financial officer	X			
32.1	Rule 1350 certification	X			
101.1	Interactive Data File regarding (a) our Consolidated Balance Sheets as of December 31, 2020 and 2019, (b) our Consolidated Statements of Operations for the years ended December 31, 2020 and 2019, (c) our Consolidated Statements of Comprehensive (Loss) Income for the years ended December 31, 2020 and 2019, (d) our Consolidated Statements of Stockholders' Equity for the years ended December 31, 2020 and 2019, (e) our Consolidated Statements of Cash Flows for the years ended December 31, 2020 and 2019, and (e) the Notes to such Consolidated Financial Statements	X			
104.1	Cover Page Interactive Data File (embedded within the Inline XBRL document)	X			

* Management contract or compensatory plan.

ITEM 16. Form 10-K Summary

None.

SIGNATURES

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

KVH Industries, Inc.

Date: March 3, 2021

By: /s/ MARTIN A. KITS VAN HEYNINGEN

Martin A. Kits van Heyningen
President, Chief Executive Officer and Chairman of the Board

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

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/S/ MARTIN A. KITS VAN HEYNINGEN</u> Martin A. Kits van Heyningen	President, Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	<u>March 3, 2021</u>
<u>/S/ BRENT C. BRUUN</u> Brent C. Bruun	Interim Chief Financial Officer (Principal Financial Officer) and Chief Operating Officer	<u>March 3, 2021</u>
<u>/S/ JENNIFER L. BAKER</u> Jennifer L. Baker	Vice President and Chief Accounting Officer (Principal Accounting Officer)	<u>March 3, 2021</u>
<u>/S/ MARK S. AIN</u> Mark S. Ain	Director	<u>March 3, 2021</u>
<u>/S/ DANELLE M. BARRETT</u> Danelle M. Barrett	Director	<u>March 3, 2021</u>
<u>/S/ JAMES S. DODEZ</u> James S. Dodez	Director	<u>March 3, 2021</u>
<u>/S/ STANLEY K. HONEY</u> Stanley K. Honey	Director	<u>March 3, 2021</u>
<u>/S/ ROBERT E. TAVARES</u> Robert E. Tavares	Director	<u>March 3, 2021</u>
<u>/S/ CHARLES R. TRIMBLE</u> Charles R. Trimble	Director	<u>March 3, 2021</u>

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
KVH Industries, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of KVH Industries, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive (loss) income, stockholders’ equity, and cash flows for each of the two years in the period ended December 31, 2020, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

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 the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated March 3, 2021 expressed an unqualified opinion.

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 matters

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

Quantitative impairment assessments – goodwill

As described in Note 1(k) to the financial statements, the Company evaluates goodwill for impairment at the reporting unit level annually on October 1 of each year, or more frequently if events or circumstances indicate the carrying value of a reporting unit that includes goodwill might exceed the fair value of that reporting unit. Due to the impacts of the COVID-19 pandemic and the decline of the forecasted revenue particularly in the KVH Media Group, which has been impacted in part by a global reduction in travel, the Company determined that a quantitative impairment assessment should be performed for each of its two reporting units with goodwill at the annual impairment test date of October 1, 2020. As a result of these assessments, management concluded that the carrying value of the KVH Media Group reporting unit exceeded its fair value and recorded an impairment charge of \$8.7M as of the annual impairment test date. We identified the estimation of the fair values of the reporting units in the quantitative goodwill impairment assessments as a critical audit matter.

The principal considerations for our determination that this matter is a critical audit matter are the significant management estimates and judgments related to forecasts of expected future cash flows used in the estimation of the reporting units’ fair value. Management’s significant estimates and judgments include the determination of revenue growth rates, gross profit growth rates, operating expenses, capital expenditures, projected long-term growth rates and discount rates. Changes in these assumptions could materially affect the fair values of the reporting units.

Our audit procedures related to quantitative impairment testing of the reporting units included the following procedures, among others:

- Tested the design and operating effectiveness of certain internal controls relating to management's quantitative goodwill impairment assessment, including those over management's forecasts of future revenue, operating income margins and long-term growth rates and the determination of the discount rate.
- Tested management's process for determining the fair values of the reporting units. This included evaluating the appropriateness of the valuation methods, testing the completeness, accuracy and relevance of data used by management, and evaluating management's significant assumptions used to project future cash flows, which included forecasted gross profit, operating expenses, capital expenditures and discount rates.
- We performed sensitivity analyses on the future revenue, operating margins and discount rates used to evaluate the impact changes in these assumptions have on management's conclusion.
- With the assistance of our valuation professionals with specialized skills and knowledge, we evaluated the valuation methodologies utilized by management.

Recognition of satellite connectivity services revenue

As described further in Note 1(e) to the financial statements, the Company's satellite connectivity services revenue, including broadband Internet, data and VoIP services, is recognized monthly based primarily on contracted fixed-fee schedules as well as any overages for minutes or megabytes of traffic processed. We identified satellite connectivity services revenue as a critical audit matter.

The principal considerations for our determination that satellite connectivity service sales transactions are a critical audit matter is the complexity of the process used by management for recognizing revenue, given the diversity of data sources, and the number of systems involved, which includes third party systems. This requires a high degree of audit subjectivity and effort in designing and performing audit procedures to evaluate whether the satellite connectivity services revenue is recognized properly.

Our audit procedures related to the satellite connectivity services revenue included the following, among others:

- We tested the design and operating effectiveness of controls related to management's review and validation of data coming from third parties that is used as an input in revenue recognition as well as the controls over review of appropriate revenue recognition for this revenue stream.
- We performed detailed transaction testing over the occurrence and accuracy of the revenue recognized by validating usage data from third party reports which is utilized in customer billing.
- We obtained the billing service provider's SOC-1 report, bridge letter (as applicable), and Management's internal control review of the SOC-1 report. We verified that Management had assessed key complementary user entity controls ("CUEC"s). We inspected the SOC-1 report to verify that there were no failed controls, and that the opinion was unqualified. In addition, we tested key controls that were responsive to the CUECs.
- We tested the design and operating effectiveness of IT general controls related to management's ERP system used to record the related revenue for this stream.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2014.

Boston, Massachusetts

March 3, 2021

KVH INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	December 31,	
	2020	2019
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 12,578	\$ 18,365
Marketable securities	25,141	29,907
Accounts receivable, net of allowance for doubtful accounts of \$1,596 and \$1,589 as of December 31, 2020 & December 31, 2019, respectively	33,687	32,891
Inventories	24,674	23,465
Prepaid expenses and other current assets	3,894	3,188
Current contract assets	1,086	1,458
Total current assets	101,060	109,274
Property and equipment, net	56,273	53,584
Intangible assets, net	2,254	4,943
Goodwill	6,592	15,408
Right of use assets	6,893	6,286
Other non-current assets	7,785	6,443
Non-current contract assets	2,661	3,408
Deferred income tax asset	73	45
Total assets	\$ 183,591	\$ 199,391
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 11,400	\$ 15,031
Accrued compensation and employee-related expenses	7,156	5,637
Accrued other	6,597	7,733
Accrued product warranty costs	1,812	2,194
Current portion of long-term debt	4,992	—
Contract liabilities	4,445	4,443
Current operating lease liability	3,826	2,831
Liability for uncertain tax positions	560	521
Total current liabilities	40,788	38,390
Other long-term liabilities	674	1,292
Long-term operating lease liability	3,204	3,482
Long-term contract liabilities	4,688	5,476
Long-term debt, excluding current portion	1,935	—
Deferred income tax liability	418	762
Total liabilities	\$ 51,707	\$ 49,402
Commitments and contingencies (Notes 1, 5, 6, 15, 16 and 17)		
Stockholders' equity:		
Preferred stock, \$0.01 par value. Authorized 1,000,000 shares; none issued	—	—
Common stock, \$0.01 par value. Authorized 30,000,000 shares, 19,862,534 and 19,398,699 shares issued at December 31, 2020 and December 31, 2019, respectively; and 18,429,840 and 18,001,261 shares outstanding at December 31, 2020 and December 31, 2019, respectively	199	194
Additional paid-in capital	149,170	144,485
Accumulated (deficit) retained earnings	(2,402)	19,538
Accumulated other comprehensive loss	(3,232)	(2,767)
	143,735	161,450
Less: treasury stock at cost, 1,432,694 and 1,397,438 shares as of December 31, 2020 and December 31, 2019, respectively	(11,851)	(11,461)
Total stockholders' equity	131,884	149,989
Total liabilities and stockholders' equity	\$ 183,591	\$ 199,391

See accompanying Notes to Consolidated Financial Statements.

KVH INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Year Ended December 31,	
	2020	2019
Sales:		
Product	\$ 64,619	\$ 61,925
Service	94,114	95,968
Net sales	158,733	157,893
Costs and expenses:		
Costs of product sales	41,608	42,887
Costs of service sales	59,517	61,256
Research and development	15,799	15,926
Sales, marketing and support	29,811	33,434
General and administrative	24,445	25,486
Goodwill impairment charge	8,732	—
Intangible asset impairment charge	1,758	—
Total costs and expenses	181,670	178,989
Loss from operations	(22,937)	(21,096)
Interest income	996	2,003
Interest expense	18	1,020
Other income, net	193	101
Loss from continuing operations before income tax expense (benefit)	(21,766)	(20,012)
Income tax expense (benefit) from continuing operations	174	(4,003)
Net loss from continuing operations	(21,940)	(16,009)
Income from discontinued operations, net of tax	—	49,264
Net (loss) income	\$ (21,940)	\$ 33,255
Net loss from continuing operations per common share		
Basic and diluted	\$ (1.24)	\$ (0.92)
Net income from discontinued operations per common share		
Basic and diluted	\$ 0.00	\$ 2.82
Net (loss) income per common share		
Basic and diluted	\$ (1.24)	\$ 1.90
Number of shares used in per share calculation:		
Basic and diluted	17,669	17,459

See accompanying Notes to Consolidated Financial Statements.

KVH INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME
(in thousands)

	Year Ended December 31,	
	2020	2019
Net (loss) income	\$ (21,940)	\$ 33,255
Other comprehensive (loss) income, net of tax:		
Foreign currency translation adjustment	(465)	11,953
Unrealized gain on derivative instruments, net	—	11
Other comprehensive (loss) income, net of tax ⁽¹⁾	(465)	11,964
Total comprehensive (loss) income	\$ (22,405)	\$ 45,219

(1) Tax impact was nominal for all periods.

See accompanying Notes to Consolidated Financial Statements.

KVH INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Common Stock		Additional Paid-in Capital	(Accumulated Deficit) Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock		Total Stockholders' Equity
	Shares	Amount				Shares	Amount	
Balance at December 31, 2018	19,026	\$ 190	\$ 139,617	\$ (15,397)	\$ (14,731)	(1,282)	\$ (10,164)	\$ 99,515
Net income	—	—	—	33,255	—	—	—	33,255
Other comprehensive income	—	—	—	—	11,964	—	—	11,964
ASC 606 correction (FN 11)	—	—	—	1,680	—	—	—	1,680
Stock-based compensation	—	—	4,159	—	—	—	—	4,159
Issuance of common stock under employee stock purchase plan	45	—	414	—	—	—	—	414
Acquisition of treasury stock	—	—	—	—	—	(115)	(1,297)	(1,297)
Exercise of stock options and issuance of restricted stock awards, net of forfeitures	328	4	295	—	—	—	—	299
Balance at December 31, 2019	19,399	\$ 194	\$ 144,485	\$ 19,538	\$ (2,767)	(1,397)	\$ (11,461)	\$ 149,989
Net loss	—	—	—	(21,940)	—	—	—	(21,940)
Other comprehensive loss	—	—	—	—	(465)	—	—	(465)
Stock-based compensation	—	—	3,462	—	—	—	—	3,462
Issuance of common stock under employee stock purchase plan	44	—	336	—	—	—	—	336
Acquisition of treasury stock	—	—	—	—	—	(36)	(390)	(390)
Exercise of stock options and issuance of restricted stock awards, net of forfeitures	420	5	887	—	—	—	—	892
Balance at December 31, 2020	19,863	\$ 199	\$ 149,170	\$ (2,402)	\$ (3,232)	(1,433)	\$ (11,851)	\$ 131,884

See accompanying Notes to Consolidated Financial Statements.

KVH INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,	
	2020	2019
Cash flows from operating activities:		
Net (loss) income	\$ (21,940)	\$ 33,255
Adjustments to reconcile net (loss) income to net cash used in operating activities:		
Provision for doubtful accounts	333	(131)
Depreciation and amortization	11,663	11,487
Impairment charge to goodwill and intangibles	10,490	—
Deferred income taxes	(283)	203
Loss on disposals of fixed assets	713	189
Gain on sale of Videotel	—	(53,711)
Compensation expense related to stock-based awards and employee stock purchase plan	3,462	4,159
Unrealized currency translation loss	151	71
Changes in operating assets and liabilities:		
Accounts receivable	(1,123)	(4,344)
Inventories	(1,205)	(553)
Prepaid expenses, other current assets, and current contract assets	(314)	(307)
Other non-current assets and non-current contract assets	(484)	(1,042)
Accounts payable	(3,274)	(1,916)
Deferred revenue, contract liabilities, and long-term contract liabilities	(817)	1,170
Accrued compensation, product warranty, and other	(458)	(2,691)
Other long-term liabilities	7	(4)
Net cash used in operating activities	\$ (3,079)	\$ (14,165)
Cash flows from investing activities:		
Capital expenditures	(14,066)	(12,526)
Cash paid for acquisition of intangible assets	(75)	(94)
Proceeds from sale of fixed assets	80	103
Proceeds from sale of Videotel, net of cash sold	—	88,447
Purchases of marketable securities	(8,734)	(41,882)
Maturities and sales of marketable securities	13,500	12,000
Net cash (used in) provided by investing activities	\$ (9,295)	\$ 46,048
Cash flows from financing activities:		
Repayments of long-term debt	—	(2,597)
Proceeds from PPP loan	6,927	—
Repayments of term note borrowings	—	(21,938)
Repayments of line of credit borrowings	—	(15,000)
Proceeds from line of credit borrowings	—	10,000
Proceeds from stock options exercised and employee stock purchase plan	1,216	700
Repurchase of common stock	(390)	(1,297)
Payment of finance lease	(624)	(624)
Net cash provided by (used in) financing activities	\$ 7,129	\$ (30,756)
Effect of exchange rate changes on cash and cash equivalents	(542)	(812)
Net (decrease) increase in cash and cash equivalents	(5,787)	315
Cash and cash equivalents at beginning of period	18,365	18,050
Cash and cash equivalents at end of period	\$ 12,578	\$ 18,365
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ —	\$ 929
Cash paid for income taxes, net of refunds	\$ 1,051	\$ 424
Changes in accrued other and accounts payable related to property and equipment additions	\$ 165	\$ 126
Right of use assets (ROU) assets arising from entering into new operating lease obligations	\$ 3,032	\$ 494

See accompanying Notes to Consolidated Financial Statements.

KVH INDUSTRIES, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2020 and 2019
(in thousands, except per share amounts)

(1) Summary of Significant Accounting Policies

(a) Description of Business

KVH Industries, Inc. (together with its subsidiaries, the Company or KVH) designs, develops, manufactures and markets mobile connectivity products and services for the marine and land markets, and inertial navigation products for both the commercial and defense markets. KVH's reporting segments are as follows:

- the mobile connectivity segment and
- the inertial navigation segment

KVH's mobile connectivity products enable customers to receive voice and Internet services, and live digital television via satellite services in marine vessels, recreational vehicles, buses and automobiles. KVH sells and leases its mobile connectivity products through an extensive international network of dealers and distributors. KVH also sells and leases products directly to end users.

KVH's mobile connectivity service sales represent primarily sales earned from satellite voice and Internet airtime services. KVH provides, for monthly fixed and usage fees, satellite connectivity services, including broadband Internet, data and VoIP services, to its TracPhone V-series customers. AgilePlans, a mini-VSAT Broadband service offering, is a monthly subscription model providing global connectivity to commercial maritime customers, including hardware, installation, broadband Internet, Voice over Internet Protocol (VoIP), entertainment and training content and global support for a monthly fee with no minimum commitment. KVH offers AgilePlans customers a variety of airtime data plans with varying data speeds and fixed data usage levels with overage charges per megabyte, which is similar to the plans that the Company offers to its other customers. The Company recognizes the monthly subscription fee as service revenue over the service delivery period. The Company retains ownership of the hardware that it provides to AgilePlans customers, who must return the hardware to KVH if they decide to terminate the service. Because KVH does not sell the hardware under AgilePlans, the Company does not recognize any product revenue when the hardware is deployed to an AgilePlans customer. KVH records the cost of the hardware used by AgilePlans customers as revenue-generating assets and depreciates the cost over an estimated useful life of five years. Since the Company is retaining ownership of the hardware, it does not accrue any warranty costs for AgilePlans hardware; however, any maintenance costs on the hardware is expensed in the period these costs are incurred.

Mobile connectivity service sales also include the distribution of commercially licensed entertainment, including news, sports, music, and movies to commercial and leisure customers in the maritime, hotel, and retail markets through the KVH Media Group. KVH also earns monthly usage fees from third-party satellite connectivity services, including voice, data and Internet services, provided to its Inmarsat and Iridium customers who choose to activate their subscriptions with KVH. Mobile connectivity service sales also include engineering services provided under development contracts, sales from product repairs, and extended warranty sales.

On May 13, 2019, the Company and its wholly owned subsidiary, KVH Media Group Limited (KMG), entered into a Share Purchase Agreement (the Purchase Agreement) with Pelican Holdco Limited, an affiliate of Oakley Capital IV Master SCSp, a UK company (together, Oakley), pursuant to which KMG sold all of the issued share capital of Super Dragon Limited and Videotel Marine Asia Limited (together referred to as Videotel) to Oakley for \$89,387 in cash, on a cash-free, debt-free basis, subject to a working capital adjustment. Videotel comprised the Company's maritime training business, which offered video, animation, eLearning computer-based training and interactive distance learning services to the maritime industry. The sale was completed immediately upon execution of definitive agreements. The Company received payment of the initial purchase price pursuant to a loan agreement (the Bridge Loan) on June 21, 2019. The Bridge Loan was secured by a charge (a type of foreign security interest) over the shares of Super Dragon Limited and Videotel Marine Asia Limited and was further backed by an equity commitment letter from Oakley Capital IV Master SCSp. The Bridge Loan's interest rate was 5% per year during the period from closing until and including the 15th business day after the closing and increased to 12% per year during the period after the 15th business day until the maturity date. In December 2019, we finalized the working capital adjustment which reduced the proceeds from the sale of Videotel to \$88,447. The Company does not have any continuing involvement in these operations other than to provide short-term transition services, which are being recorded in other income in continuing operations. The Company determined that the sale met the requirements for reporting as discontinued operations in accordance with Accounting Standards Codification (ASC) 205-20. Please see Note 18 for the discontinued operations disclosures.

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KVH's inertial navigation products offer precision fiber optic gyro (FOG)-based systems that enable platform and optical stabilization, navigation, pointing and guidance. KVH's inertial navigation products also include tactical navigation systems that provide uninterrupted access to navigation and pointing information in a variety of military vehicles, including tactical trucks and light armored vehicles. KVH's inertial navigation products are sold directly to U.S. and foreign governments and government contractors, as well as through an international network of authorized independent sales representatives. In addition, KVH's inertial navigation technology is used in numerous commercial products, such as navigation and positioning systems for various applications including precision mapping, dynamic surveying, autonomous vehicles, train location control and track geometry measurement systems, industrial robotics and optical stabilization.

KVH's inertial navigation service sales include product repairs, engineering services provided under development contracts and extended warranty sales.

(b) Principles of Consolidation

The accompanying consolidated financial statements of KVH Industries, Inc. and its wholly owned subsidiaries have been prepared in accordance with accounting principles generally accepted in the United States of America. All of the operating expenses of the subsidiaries that serve as the Company's European, Singaporean, Japanese, and Brazilian international distributors are reflected within sales, marketing, and support within the accompanying consolidated statements of operations. All significant intercompany accounts and transactions have been eliminated in consolidation.

(c) Significant Estimates and Assumptions and Other Significant Non-Recurring Transactions

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of sales and expenses during the reporting periods. The 2020 consolidated financial statements reflect an impairment charge on the KVH Media Group reporting unit within the mobile connectivity segment. See Note 1(k) and Note 9. On an on-going basis, the Company evaluates its significant estimates, including those related to terminal values and other assumptions and estimates used to evaluate the recoverability of long-lived assets and goodwill and estimated fair values of long-lived assets, including goodwill, amortization methods and periods.

Although the Company regularly assesses these estimates, actual results could differ materially from these estimates. Changes in estimates are recorded in the period in which they become known. The Company bases its estimates on historical experience and various other assumptions that it believes to be reasonable under the circumstances.

During the second quarter of 2019, the Company sold Videotel. Please see Note 18 for further discussion.

During the third quarter of 2019, the Company identified an out-of-period immaterial error related to the implementation and application of ASC 606 with respect to the recognition of revenue associated with sales-type leases. Please see Note 11 for further discussion.

During the fourth quarter of 2020, the Company recorded \$10,490 of goodwill and intangible impairment charges mostly driven by the ongoing impacts of COVID-19 on the KVH Media Group reporting unit. Please see Note 1(k) and Note 9 for further discussion.

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(d) Concentration of Credit Risk and Single Source Suppliers

Cash, cash equivalents and marketable securities. The Company is potentially subject to financial instrument concentration of credit risk through its cash, cash equivalent and marketable securities investments. To mitigate these risks the Company maintains cash, cash equivalents and marketable securities with reputable and nationally recognized financial institutions. As of December 31, 2020, \$25,141 classified as marketable securities was held by Wells Fargo and substantially all of the cash and cash equivalents were held by Bank of America, N.A. See Note 2 for a description of marketable securities.

Trade accounts receivable. Concentrations of risk (see Note 11) with respect to trade accounts receivable are generally limited due to the large number of customers and their dispersion across several geographic areas. Although the Company does not foresee that credit risk associated with these receivables will deviate from historical experience, repayment is dependent upon the financial stability of those individual customers. The Company establishes allowances for potential bad debts and evaluates, on a monthly basis, the adequacy of those reserves based upon historical experience and its expectations for future collectability concerns. The Company performs ongoing credit evaluations of the financial condition of its customers and generally does not require collateral. Activity within the Company's allowance for doubtful accounts for the periods presented is as follows:

	2020	2019
Beginning balance	\$ 1,589	\$ 2,390
Additions (Subtractions)	333	(189)
Deductions (write-offs/recoveries) from reserve	(326)	(612)
Ending balance	<u>\$ 1,596</u>	<u>\$ 1,589</u>

Revenue and operations. Certain components from third parties used in the Company's products are procured from single sources of supply. The failure of a supplier, including a subcontractor, to deliver on schedule could delay or interrupt the Company's delivery of products and thereby materially adversely affect the Company's revenues and operating results.

(e) Revenue Recognition

In accordance with ASC 606, revenue is recognized when a customer obtains control of promised products and services. The amount of revenue recognized reflects the consideration which the Company expects to be entitled to receive in exchange for these products and services. To achieve this core principle, the Company applies the following five steps:

1) Identify the contract with a customer

A contract with a customer exists when (i) the Company enters into an enforceable contract with a customer that defines each party's rights regarding the products and services to be transferred and identifies the payment terms related to these products and services, (ii) the contract has commercial substance, and (iii) the Company determines that collection of substantially all consideration for products and services that are transferred is probable based on the customer's intent and ability to pay the promised consideration. The Company applies judgment in determining the customer's ability and intention to pay, which is based on a variety of factors, including the customer's historical payment pattern or, in the case of a new customer, published credit and financial information pertaining to the customer.

2) Identify the performance obligations in the contract

Performance obligations promised in a contract are identified based on the products and services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the product or service either on its own or together with other resources that are readily available from third parties or from the Company, and are distinct in the context of the contract, whereby the transfer of the product or service is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised products and services, the Company must apply judgment to determine whether promised products and services are capable of being distinct and distinct in the context of the contract. If these criteria are not met, the promised products and services are accounted for as a combined performance obligation.

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3) Determine the transaction price

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring products and services to the customer. To the extent the transaction price includes variable consideration, the Company estimates the amount of variable consideration that should be included in the transaction price utilizing either the expected value method or the most likely amount method, depending on the nature of the variable consideration. Variable consideration is included in the transaction price if, in the Company's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur.

4) Allocate the transaction price to performance obligations in the contract

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. However, if a series of distinct products or services that are substantially the same qualify as a single performance obligation in a contract with variable consideration, the Company must determine if the variable consideration is attributable to the entire contract or to a specific part of the contract. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation based on a relative standalone selling price basis unless the transaction price is variable and meets the criteria to be allocated entirely to a performance obligation or to a distinct product or service that forms part of a single performance obligation. The Company determines standalone selling price based on the price at which the performance obligation is sold separately. If the standalone selling price is not observable through past transactions, the Company estimates the standalone selling price taking into account available information such as market conditions and internally approved pricing guidelines related to the performance obligations.

5) Recognize revenue when or as the Company satisfies a performance obligation

The Company satisfies performance obligations either over time or at a point in time. Revenue is recognized at the time the related performance obligation is satisfied by transferring a promised product or service to a customer.

Product sales

Revenue from product sales is recognized when control of the goods is transferred to the customer, which generally occurs at the Company's plant or warehouse upon delivery to the carrier for shipment. Revenue related to shipping and handling is recognized when the products are shipped and the associated costs are accrued for based on the Company's election to account for shipping and handling activities as a fulfillment of the promise to transfer the products and not as a combined promise. For certain inertial navigation product sales, customer acceptance or inspection may be required before control of the goods is transferred to the customer. For those sales, revenue is recognized after notification of customer acceptance and the goods have been delivered to the carrier for shipment. In certain circumstances customers may request a bill-and-hold arrangement. Under these bill-and-hold arrangements, revenue is recognized when the Company has fulfilled all of its performance obligations, the units are segregated for the specific customer only, and the goods are ready for physical transfer to the customer in accordance with their defined contract delivery schedule.

The Company's standard payment terms for product sales are generally Net 30. Under certain limited conditions, the Company, at its sole discretion, provides for the return of goods. No product is accepted for return and no credit is allowed on any returned product unless the Company has granted and confirmed prior written permission by means of appropriate authorization. The Company establishes reserves for potential sales returns, credits, and allowances, and evaluates, on a monthly basis, the adequacy of those reserves based upon historical experience and expectations for the future.

Contracts with multiple performance obligations

The Company sells products and services through arrangements that in certain instances bundle VSAT equipment, satellite connectivity and other services. For these arrangements, the Company has determined that the performance obligations are not distinct in the context of the contracts with certain customers. The Company recognizes product revenue under these arrangements over the estimated satellite connectivity customer life, which is estimated to be five years based on historical evidence.

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Satellite connectivity and media content service sales

Directly sold and re-sold satellite connectivity service for voice, data and Internet is recognized monthly based primarily on contracted fixed-fee schedules as well as any overages for minutes or megabytes of traffic processed. The Company has evaluated whether it obtains control of the services that are being transferred to the customer in assessing gross revenue reporting as principal verse net revenue reporting as agent for its satellite connectivity service sales and its payments to the applicable service providers. Based on the Company's assessment of the indicators, the Company has determined that gross revenue reporting as a principal is appropriate. The applicable indicators of gross revenue reporting include, but are not limited to, the following:

- The Company is the primary obligor in its arrangements with its subscribers. The Company manages all interactions with the subscribers, while satellite connectivity service providers do not interact with the subscribers. In addition, the Company assumes the entire performance risk under its arrangements with the subscribers and in the event of a performance issue, the Company may incur reductions in fees without regard for any recourse that the Company may have with the applicable satellite connective service providers.
- The Company has discretion in establishing pricing, as the pricing under its arrangements with the subscribers is negotiated through a contracting process. The Company then separately negotiates the fees with the applicable satellite service providers.
- The Company has complete discretion in determining which satellite service providers it will contract with.

As a result, the Company has determined that it earns revenue (as a principal) from the delivery of satellite connectivity services to its subscribers and records all satellite connectivity service sales to subscribers as gross sales. All associated regulatory service fees and costs are recorded net in the consolidated financial statements.

The Company sells prepaid airtime services in the form of prepaid cards. A liability is established upon purchase equal to the cash paid for the prepaid card. The Company recognizes revenue from the prepaid services upon the use of the prepaid card by the customer. The Company does not offer refunds for unused prepaid services. Prepaid airtime services have not been a significant portion of the Company's total sales.

Media content sales include the Company's distribution of commercially licensed news, sports, movies and music content for commercial and leisure customers in the maritime, hotel, and retail markets. The Company typically recognizes revenue from media content sales ratably over the period of the service contract.

The accounting estimates related to the recognition of satellite connectivity and media content service sales require the Company to make assumptions about future billing adjustments for disputes with subscribers as well as unauthorized usage. The Company recognizes the monthly subscription fee as service revenue over the service delivery period. Under AgilePlans, the Company retains ownership of the hardware that it provides to these customers, who must return the hardware to KVH if they decide to terminate the service. Because KVH does not sell the hardware under AgilePlans, the Company does not recognize any product revenue when the hardware is deployed to an AgilePlans customer.

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Inertial navigation service sales

The Company engages in contracts for development, production, and services activities related to standard product modification or enhancement. The Company considers the nature of these contracts and the types of products and services provided when determining the proper accounting for a particular contract. Customer and government-agency contracted engineering service and sales under development contracts are recognized primarily during the periods in which the Company performs the service or development efforts in accordance with the agreement. Services performed under these types of contracts include engineering studies, surveys, building construction, prototype development, and program management. Performance is determined principally by comparing the accumulated labor hours incurred to date with management's estimate of the total labor hours to complete the contracted work. Incurred labor hours represent work performed, which corresponds with and best depicts the transfer of control to the customer. This continuous transfer of control to the customer is supported by clauses in the contract that allow the customer to unilaterally terminate the contract for convenience, pay the Company for costs incurred plus a reasonable profit and take control of any work in process. The Company establishes billing terms at the time project deliverables and milestones are agreed. Unbilled revenue recognized in excess of the amounts invoiced to clients are classified within the accompanying consolidated balance sheets as "accounts receivable" as the Company's right to consideration is unconditional.

Product service sales

Product service sales other than under development contracts are recognized when completed services are delivered to the customer. The Company also sells extended warranty contracts on mobile connectivity and inertial navigation products. Sales under these contracts are recognized ratably over the contract term. Product service sales including extended warranties are not a significant portion of the Company's total sales.

(f) Leases

The Company adopted ASC 842 on January 1, 2019. ASC 842 requires the recognition of lease assets and lease liabilities for leases classified as operating leases. The original guidance required application of ASC 842 on a modified retrospective basis with the earliest period presented. In August 2018, the FASB issued ASU 2018-11, *Targeted Improvements to ASC 842*, which included an option to not restate comparative periods in transition and elect to use the effective date as the date of initial application of transition. The Company elected not to restate comparative periods and, accordingly, the financial results reported for periods prior to January 1, 2019 have not been restated. The new lease accounting standard did not have an impact on the amounts reported in the consolidated statement of operations but resulted in the recording of \$10,469 of new right of use (ROU) assets and additional liabilities for operating leases on the consolidated balance sheet as of January 1, 2019. In ASC 842, a lease is defined as follows: "[a] contract is or contains a lease if the contract conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration."

Upon adoption, the Company recognized all leases greater than one year in duration on the balance sheet as right-of-use assets and lease liabilities. The Company made certain assumptions and judgments when applying ASC 842. The Company elected practical expedients available for the transition, such as whether expired or existing contracts contain leases under the new definition of a lease, lease classification for expired or existing leases, and whether previously capitalized initial direct costs would qualify for capitalization under ASC 842. For all asset classes, the Company elected to not separate non-lease components from lease components to which they relate and have accounted for the combined lease and non-lease components as a single lease component.

Many of our lease agreements contain renewal options which are recognized if it is determined that the Company is reasonably certain to renew the lease at inception or when a triggering event occurs. Some of our lease agreements contain rent escalation clauses, rent holidays, capital improvement funding or other lease concessions. The Company recognizes the minimum rental expense on a straight-line basis based on the fixed components of a lease arrangement and amortize such expense over the term of the lease beginning with the commencement date. Variable lease components that are not fixed at the beginning of the lease are recognized as incurred.

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Under certain third-party service agreements, the Company controls a specific space or underlying asset used in providing the service by the third-party service provider. These arrangements meet the definition under ASC 842 and therefore are accounted for under ASC 842. Right-of-use assets and lease liabilities are recognized at commencement date based on the present value of lease payments over the lease term and include options to extend or terminate the lease when reasonably certain to be exercised. The present value of lease payments is determined using the incremental borrowing rate based on the information available at the lease commencement date.

(g) Fair Value of Financial Instruments

The carrying amounts of the Company's financial instruments, which include cash equivalents, investments, accounts receivable, accounts payable and accrued expenses, approximate their fair values due to the short maturity of these instruments. See Note 2 for more information on the fair value of the Company's marketable securities. The carrying amount of the Company's debt, and capital lease approximates fair value based on currently available quoted rates of similarly structured debt facilities. See Note 5 for more information on the fair value of the Company's debt and line of credit and Note 17 for the Company's finance lease.

(h) Cash, Cash Equivalents, and Marketable Securities

In accordance with the Company's investment policy, cash in excess of operational needs is invested in money market mutual funds, government agency bonds, United States treasuries, municipal bonds, corporate notes, or certificates of deposit. All highly liquid investments with a maturity date of three months or less at the date of purchase are classified as cash equivalents. The Company determines the appropriate classification of marketable securities at each balance sheet date. As of December 31, 2020 and 2019, all of the Company's marketable securities have been designated as available-for-sale and are carried at their fair value with unrealized gains and losses included in accumulated other comprehensive loss in the accompanying consolidated balance sheets.

The Company reviews investments in debt securities for other than temporary impairment whenever the fair value of an investment is less than amortized cost and evidence indicates that an investment's carrying amount is not recoverable within a reasonable period of time. To determine whether an impairment is other-than-temporary, the Company considers whether it intends to sell the security, whether it expects to recover the credit loss, and if it is more likely than not that the Company will be required to sell the security prior to recovery. Evidence considered in this assessment includes the reasons for the impairment, compliance with the Company's investment policy, the severity and duration of the impairment, changes in value subsequent to year-end and forecasted performance of the investee. The Company has reviewed its securities with unrealized losses as of December 31, 2020 and 2019 and has concluded that no other-than-temporary impairments exist.

(i) Inventories

Inventories are stated at the lower of cost and net realizable value using the first-in first-out costing method. The Company adjusts the carrying value of its inventory based on the consideration of excess and obsolete components based on future estimate demand. The Company records inventory charges to costs of product sales.

(j) Property and Equipment

Property and equipment are stated at cost. Depreciation and amortization are computed on the straight-line method over the estimated useful lives of the respective assets. The principal lives used in determining the depreciation rates of various assets are: buildings and improvements, 5-40 years; leasehold improvements, shorter of original lease term or useful life; machinery, satellite hubs and equipment, 4-10 years; office and computer equipment, 3-7 years; and motor vehicles, 5 years.

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(k) Goodwill, Intangible Assets and other Long-Lived Assets

The Company's goodwill and intangible assets are associated with the purchase of Virtek Communication (now known as KVH Industries Norway AS) in September 2010 and Headland Media Limited (now known as the KVH Media Group) in May 2013.

In accordance with ASC Update No. 2017-04, Intangibles-Goodwill and Other (Topic 350): Simplifying the Test of Goodwill Impairment. (ASC 350), the Company performs a goodwill impairment test at least annually based on either an optional qualitative assessment or a quantitative analysis comparing the estimated fair value of a reporting unit to its carrying value as of the test date. Any impairment charges would be based on the quantitative analysis. Prior to 2020, the Company has not recorded or incurred goodwill impairment charges.

For the October 1, 2019 test, the Company performed a qualitative assessment of goodwill impairment and concluded that it was more likely than not that the reporting units' fair values exceeded their carrying values. Accordingly, it was not necessary for the Company to perform the quantitative analysis.

For the October 1, 2020 test, however, due to the uncertainty that the global pandemic presented during 2020, the Company determined that it should perform a quantitative analysis of goodwill impairment. The Company performed this full quantitative analysis in the fourth quarter of 2020 in conjunction with its annual budgeting and long-term planning cycle. The last full quantitative analysis was completed in 2017. The COVID-19 pandemic has impacted various aspects of the Company's operations and it has been monitoring the impact of this global crisis carefully throughout the year. The Company has particularly monitored the operations of KVH Media Group which depends heavily on travel and travel-related industries. The revenues and cash flows of KVH Media Group have been significantly impacted by the global reduction in travel since the start of the pandemic. Prior to the annual impairment test in the fourth quarter of 2020, based on the Company's quarterly review of the impact of this global crisis on its forecasted revenues and cash flows, there was no indication of impairment to the carrying value of goodwill or other intangible assets. However, in the fourth quarter of 2020, there were increases in the number of reported COVID-19 cases, and substantial shutdowns were reinstated in the United States, UK and Europe, which caused continued disruptions to the KVH Media Group business as the global travel and related industries remained at historically depressed levels. In response to the impact of the pandemic, particularly with respect to the KVH Media Group business, during the Company's annual budgeting and long-term planning process, the Company conducted detailed discussions with many of its largest customers in the KVH Media Group to validate its assumptions, which indicated further expected delays in recovery, and certain areas of the KVH Media Group business that may not recover completely or at all. Accordingly, in connection with the annual goodwill assessment, the Company updated its long-term revenue and cash flow forecast to reflect these most recent observations, which were used in the annual goodwill test. With the assistance of valuation specialists, the Company utilized an income approach and market approach to estimate the fair value of its reporting units. The Company believes that the assumptions used to estimate the fair value of its reporting units were reasonable. As an additional corroborative test of the reasonableness of those assumptions, the Company completed a reconciliation of its market capitalization and overall enterprise value to the fair value of all of its reporting units as of October 1, 2020. The Company estimated that, as of October 1, 2020, the fair value of the mobile broadband reporting unit exceeded its carrying value by 18%; however, the carrying value of the KVH Media Group reporting unit exceeded its fair value by \$10,156, which signified that an impairment had occurred and identified a triggering event to review the other long-lived assets for impairment. In accordance with ASC 360-10, *Property, Plant and Equipment – Impairment or Disposal of Long-Lived Assets* (ASC 360), with regard to its long-lived assets, the Company performed an undiscounted cash flow analysis and concluded that the carrying value of the asset group was not recoverable. Accordingly, the Company then performed an analysis to estimate the fair value of the other long-lived assets and recognized an impairment charge of \$1,758, against the distribution rights intangible asset, the amount by which the carrying value of the asset group's other long-lived assets exceeded their estimated fair value, and a reduction in the associated deferred tax liability of \$334. As a result, the Company recognized an impairment charge to KVH Media Group's goodwill in the amount of \$8,732, the remaining amount by which the carrying value exceeded its fair value. After recording this impairment, the Company's consolidated balance sheet continues to include \$8,846 of goodwill and other intangible assets of which \$4,445 relates to KVH Media Group.

A negative trend of operating results or material changes to forecasted operating results could result in the requirement for additional interim goodwill impairment tests and the potential of future goodwill impairment charges, which could be material. See Note 9 for further discussion of goodwill and intangible assets.

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(l) Other Non-Current Assets

Other non-current assets are primarily comprised of long-term lease receivables, prepaid expenses, and deposits.

(m) Product Warranty

The Company's products carry standard limited warranties that range from one to two years and vary by product. The warranty period begins on the date of retail purchase or lease by the original purchaser. The Company accrues estimated product warranty costs at the time of sale and any additional amounts are recorded when such costs are probable and can be reasonably estimated. Factors that affect the Company's warranty liability include the number of units sold or leased, historical and anticipated rates of warranty repairs and the cost per repair. Warranty and related costs are reflected within sales, marketing and support in the accompanying consolidated statements of operations. As of December 31, 2020 and 2019, the Company had accrued product warranty costs of \$1,812 and \$2,194, respectively. The following table summarizes product warranty activity during 2020 and 2019:

	2020		2019	
Beginning balance	\$	2,194	\$	1,916
Charges to expense		1,091		2,186
Costs incurred		(1,473)		(1,908)
Ending balance	\$	1,812	\$	2,194

(n) Shipping and Handling Costs

Shipping and handling costs are expensed as incurred and included in cost of sales. Billings for shipping and handling are reflected within net sales in the accompanying consolidated statements of operations.

(o) Research and Development

Expenditures for research and development, including customer-funded research and development, are expensed as incurred. Revenue and related development costs from customer-funded research and development are as follows:

	Year Ended December 31,			
	2020		2019	
Customer-funded service sales	\$	2,043	\$	5,816
Customer-funded costs included in costs of service sales	\$	2,935	\$	4,373

(p) Advertising Costs

Costs related to advertising are expensed as incurred. Advertising expense was \$1,285 and \$2,290 for the years ended December 31, 2020 and 2019, respectively, and is included in sales, marketing, and support expense in the accompanying consolidated statements of operations.

(q) Foreign Currency Translation

The financial statements of the Company's foreign subsidiaries located in Denmark and Singapore are maintained using the United States dollar as the functional currency. Exchange rates in effect on the date of the transaction are used to record monetary assets and liabilities. Revenue and other expense elements are recorded at rates that approximate the rates in effect on the transaction dates. Foreign currency exchange gains and losses are recognized within "Other income, net" in the accompanying consolidated statements of operations. For the years ended December 31, 2020 and 2019, the Company recorded a total of net foreign currency exchange losses in its accompanying consolidated statements of operations of \$48 and \$181, respectively, which is comprised of both realized and unrealized foreign currency exchange gains and losses.

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The financial statements of the Company's foreign subsidiaries located in the United Kingdom, Brazil, Norway, Cyprus and Japan use the foreign subsidiaries' respective local currencies as the functional currency. The Company translates the assets and liabilities of these foreign subsidiaries at the exchange rates in effect at year-end. Net sales, costs and expenses are translated using average exchange rates in effect during the year. Gains and losses from foreign currency translation are credited or charged to accumulated other comprehensive loss included in stockholders' equity in the accompanying consolidated balance sheets.

(r) Income Taxes

The Company is subject to income taxes in the U.S. and in numerous foreign jurisdictions. The Company accounts for income taxes following ASC Topic 740, *Accounting for Income Taxes*.

Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that some or all of a deferred tax asset will not be realized. The Company determines whether it is more likely than not that a tax position will be sustained upon examination. If it is not more likely than not that a position will be sustained, no amount of the benefit attributable to the position is recognized. The tax benefit to be recognized of any tax position that meets the more likely than not recognition threshold is calculated as the largest amount that is more than 50% likely of being realized upon resolution of the contingency.

The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. The Company recognizes interest and penalties within the income tax expense line in the accompanying consolidated statements of operations. Accrued interest and penalties are included within the related tax liability line in the consolidated balance sheets. See Note 8 for further discussion of income taxes.

(s) Net Loss per Common Share

Basic net loss per share is calculated based on the weighted average number of common shares outstanding during the period. Diluted net income per share incorporates the dilutive effect of common stock equivalent options, warrants and other convertible securities, if any, as determined in accordance with the treasury stock accounting method. For the years ended December 31, 2020 and 2019 since there was a net loss from continuing operations, the Company excluded all 1,566 and 1,209 shares, respectively, in outstanding stock options and non-vested restricted shares from its diluted loss per share calculation, as inclusion of these securities would have reduced the net loss per share.

A reconciliation of the basic and diluted weighted average common shares outstanding is as follows:

	2020	2019
Weighted average common shares outstanding—basic	17,669	17,459
Dilutive common shares issuable in connection with stock plans	—	—
Weighted average common shares outstanding—diluted	17,669	17,459

(t) Contingent Liabilities

The Company estimates the amount of potential exposure it may have with respect to claims, assessments and litigation in accordance with ASC 450, *Contingencies*. As of December 31, 2020 and 2019, the Company was not party to any lawsuit or proceeding that, in management's opinion, was likely to materially harm the Company's business, results of operations, financial condition or cash flows, as described in Note 16. It is not always possible to predict the outcome of litigation, as it is subject to many uncertainties. Additionally, it is not always possible for management to make meaningful estimates of the potential loss or range of loss associated with such litigation.

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(u) Operating Segments

The Company operates in two segments, the mobile connectivity and inertial navigation segments. Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker in making decisions regarding resource allocation and assessing performance. The Company's chief operating decision maker is its President, Chief Executive Officer and Chairman of the Board.

The Company operates in a number of major geographic areas, including internationally. Revenues from international locations, primarily consisting of Canada, European countries, both inside and outside the European Union, as well as Africa, Asia/Pacific, the Middle East, and South America (see Note 12, "Segment Reporting").

(v) Recently Issued Accounting Standards

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board, or FASB, or other standard setting bodies. Recently issued standards typically do not require adoption until a future effective date. Prior to their effective date, the Company evaluates the pronouncements to determine the potential effects of adoption on our consolidated financial statements.

Standards Implemented

ASC Update No. 2018-13

In August 2018, the FASB issued ASC Update No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*. The update is effective for annual periods beginning on or after December 15, 2019. The purpose of Update No. 2018-13 is to modify and eliminate some of the disclosure requirements on fair value measurements found in Topic 820, *Fair Value Measurement*. Through the inclusion of this update, FASB aims to facilitate a clear communication of the information required by GAAP that is most important to users of each entity's financial statements, thus helping to improve the effectiveness of disclosures in the notes to financial statements. The adoption of Update No. 2018-13 did not have a material impact on the Company's financial position or results of operations.

ASC Update No. 2018-15

In August 2018, the FASB issued ASC Update No. 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Topic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. The update is effective for annual periods beginning on or after December 15, 2019. The purpose of Update No. 2018-15 is to provide a new guideline to the accounting of a customer of a cloud computing arrangement hosted by a vendor when the customer incurs costs associated with the implementation, set-up, and other upfront costs. Specifically, customers will follow the same criteria found in an arrangement with a software license when they capitalize the implementation costs. The new guidance also affects the classification of the capitalized implementation costs and related amortization expense found in a company's balance sheet, income statement, and cash flow statement, and the update also requires additional quantitative and qualitative disclosures. The adoption of Update No. 2018-15 did not have a material impact on the Company's financial position or results of operations.

Standards to be Implemented

ASC Update No. 2016-13, ASC Update No. 2018-19, ASC Update No. 2019-04, ASC Update No. 2019-05, ASC Update No. 2019-10 and ASC Update No. 2019-11

In June 2016, the FASB issued ASC Update No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The purpose of Update No. 2016-13 is to replace the incurred loss impairment methodology for financial assets measured at amortized cost with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information, including forecasted information, to develop credit loss estimates.

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In November 2018, the FASB issued ASC Update No. 2018-19, Codification Improvements to Topic 326, *Financial Instruments—Credit Losses*. This update introduced an expected credit loss methodology for the impairment of financial assets measured at amortized cost. The amendment also clarifies that receivables arising from operating leases are not within the scope of Subtopic 326-20. Instead, impairment of receivables arising from operating leases should be accounted for in accordance with Topic 842, *Leases*.

In May 2019, the FASB issued ASC Update No. 2019-04, Codification Improvements to Topic 326, *Financial Instruments—Credit Losses*, Topic 815, *Derivatives and Hedging*, and Topic 825, *Financial Instruments*. This update introduced clarifications of the Board's intent with respect to accrued interest, the transfer between classifications or categories for loans and debt securities, recoveries, reinsurance recoverables, projects of interest rate environments for variable-rate financial instruments, costs to sell when foreclosure is probable, consideration of expected prepayments when determining the effective interest rate, vintage disclosures, and extension and renewal options.

In May 2019, the FASB issued ASC Update No. 2019-05, *Financial Instruments—Credit Losses* (Topic 326). The amendments in the update ease the transition for entities adopting ASC Update 2016-13 and increase the comparability of financial statement information. With the exception of held-to-maturity debt securities, the amendments allow entities to irrevocably elect to apply the fair value option to financial instruments that were previously recorded at amortized cost basis within the scope of Subtopic 326-20, *Financial Instruments—Credit Losses—Measured at Amortized Cost*.

In November 2019, the FASB issued ASC Update No. 2019-10, *Financial Instruments—Credit Losses* (Topic 326), *Derivatives and Hedging* (Topic 815), and *Leases* (Topic 842). The amendments in this update change some effective dates for certain new accounting standards including those pertaining to Topic 326 discussed above, for certain types of entities.

In November 2019, the FASB issued ASC Update No. 2019-11, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses*. The update is effective for entities that have adopted ASU 2016-13. The purpose of Update No. 2019-11 is to clarify the scope of the recovery guidance to purchased financial assets with credit deterioration.

As a smaller reporting entity, for ASC 815 and ASC 842, the effective dates will be the fiscal years beginning after December 15, 2020, and interim periods within fiscal years beginning after December 15, 2021 and for ASC 326, the effective date will be the fiscal years beginning after December 15, 2022. The adoption of Update Nos. 2016-13, 2018-19, 2019-04, 2019-05, 2019-10 and 2019-11 is not expected to have a material impact on the Company's financial position or results of operations.

ASC Update No. 2019-12

In December 2019, the FASB issued ASC Update No. 2019-12, *Income Taxes* (Topic 740). The update is effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted, including adoption in any interim period, for public business entities for periods for which financial statements have not yet been issued. The purpose of Update No. 2019-12 is to remove certain exceptions for recognizing deferred taxes for investments and simplify the accounting for income taxes in certain areas, including recognizing deferred taxes for tax goodwill and allocating taxes to members of a consolidated group. It amends the requirements relating to the accounting for "hybrid" tax regimes. Update No. 2019-12 is not expected to have a material impact on the Company's financial position or results of operations.

There are no other recent accounting pronouncements issued by the FASB that the Company expects would have a material impact on the Company's financial statements.

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(2) Marketable Securities

Marketable securities as of December 31, 2020 and 2019 consisted of the following:

<u>December 31, 2020</u>	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Money market mutual funds	\$ 20,142	\$ —	\$ —	\$ 20,142
United States treasuries	4,999	—	—	4,999
Total marketable securities designated as available-for-sale	\$ 25,141	\$ —	\$ —	\$ 25,141

<u>December 31, 2019</u>	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Money market mutual funds	\$ 29,907	\$ —	\$ —	\$ 29,907
Total marketable securities designated as available-for-sale	\$ 29,907	\$ —	\$ —	\$ 29,907

The effective maturity date of the United States treasuries is less than one year.

Interest income from marketable securities was \$135 and \$480 for the years ended December 31, 2020 and 2019, respectively.

(3) Inventories

Inventories are stated at the lower of cost and net realizable value using the first-in first-out costing method. Inventories as of December 31, 2020 and 2019 include the costs of material, labor, and factory overhead. Components of inventories consist of the following:

	December 31,	
	2020	2019
Raw materials	\$ 13,957	\$ 12,755
Work in process	3,996	3,117
Finished goods	6,721	7,593
	\$ 24,674	\$ 23,465

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(4) Property and Equipment

Property and equipment, net, as of December 31, 2020 and 2019 consist of the following:

	December 31,	
	2020	2019
Land	\$ 3,828	\$ 3,828
Building and improvements	24,197	24,172
Leasehold improvements	482	501
Revenue-generating assets	56,336	47,010
Machinery and equipment	15,536	18,022
Office and computer equipment	13,855	14,054
Motor vehicles	31	31
	114,265	107,618
Less accumulated depreciation	(57,992)	(54,034)
	<u>\$ 56,273</u>	<u>\$ 53,584</u>

Depreciation expense for the years ended December 31, 2020 and 2019 amounted to \$10,659 and \$8,798, respectively.

Certain revenue-generating hardware assets are utilized by the Company in the delivery of the Company's airtime services, media, and other content.

(5) Debt and Line of Credit

Long-term debt consists of the following:

	December 31,	
	2020	2019
PPP loan	\$ 6,927	\$ —
Total long-term debt	6,927	—
Less amounts classified as current	4,992	—
Long-term debt, excluding current portion	<u>\$ 1,935</u>	<u>\$ —</u>

Paycheck Protection Program Loan

In May 2020, the Company received a \$6,927 loan (the PPP Loan) from Bank of America, N.A., under the Paycheck Protection Program, which was established under the Coronavirus Aid, Relief, and Economic Security Act (as modified by the Paycheck Protection Flexibility Act of 2020, the CARES Act) and is administered by the U.S. Small Business Administration. The Company believes it has used the proceeds from the PPP Loan in accordance with the requirements of the CARES Act, primarily for payroll costs and to retain workers.

The term of the PPP Loan is two years from the funding date of the PPP Loan. The interest rate on the PPP Loan is 1.00%. Under the terms of the PPP Loan, interest accrues from the funding date of the PPP Loan but is deferred until the lender determines the amount of loan forgiveness, but the deferral period will end if the Company fails to apply for loan forgiveness within ten months after the loan forgiveness covered period. Principal and interest on the PPP Loan will be payable in monthly installments in accordance with the repayment letter. If forgiveness is determined, then there is no repayment. The promissory note evidencing the PPP Loan contains various events of default relating to, among other things, insolvency, bankruptcy or the like, payment defaults under the PPP Loan or other loans by the lender, certain defaults under other indebtedness, breach of representations and warranties, the occurrence of a material adverse event, changes in ownership, or breach of other provisions of the promissory note. Upon an event of default, all principal and accrued interest on the PPP Loan and any and all other loans

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made by the lender to the Company would at the lender's option become immediately due and payable. The Company agreed that it will not receive any other loan under the Paycheck Protection Program.

Pursuant to the terms of the CARES Act, the Company can apply for and may be granted forgiveness for all or a portion of the PPP Loan, if and to the extent that the Company satisfies all of the requirements applicable to forgiveness of the PPP Loan. Such forgiveness will be determined in part based on the use of PPP Loan proceeds in accordance with the terms of the CARES Act during the 24-week period after loan origination and the maintenance or achievement of certain employee and compensation levels. The Company has not decided whether to apply for forgiveness and can provide no assurance that any portion of the PPP Loan will be forgiven should it seek forgiveness.

Term Note and Line of Credit

Effective October 30, 2018, the Company entered into an amended and restated three-year senior secured credit facility agreement (the 2018 Credit Agreement) with Bank of America, N.A., as Administrative Agent, and the lenders named from time to time as parties thereto (the 2018 Lenders), for an aggregate amount of up to \$42,500, including a term loan (2018 Term Loan) of \$22,500 and a reducing revolving credit facility (the 2018 Revolver) of up to \$20,000 initially and reducing to \$15,000 on December 31, 2019, each to be used for general corporate purposes, including the refinancing of indebtedness under the Company's then-outstanding senior credit facility agreement. The Company's obligations under the 2018 Credit Agreement are secured by substantially all of our assets and the pledge of equity interests in certain of our subsidiaries.

On June 27, 2019, the Company used the proceeds of the sale of Videotel to repay in full the then-outstanding balance of \$21,375 under the 2018 Term Loan and to repay \$13,000 of the then-outstanding balance under the 2018 Revolver. The 2018 Revolver remained at \$20,000 through December 31, 2019 and then reduced to \$15,000 for the remaining term of the 2018 Credit Agreement. On October 30, 2021, the entire principal balance of any outstanding loans under the 2018 Revolver will be due and payable, together with all accrued and unpaid interest, fees and any other amounts due and payable under the 2018 Credit Agreement. As of December 31, 2020, no amounts were outstanding under the 2018 Revolver.

Borrowings of up to \$15,000 under the 2018 Revolver are subject to the satisfaction of various conditions precedent at the time of each borrowing, including the continued accuracy of the Company's representations and warranties and the absence of any default under the 2018 Credit Agreement. As of December 31, 2020, the Company is only able to draw on \$9,400 of the \$15,000 facility due to covenant restrictions.

The 2018 Credit Agreement contains two financial covenants, a maximum Consolidated Leverage Ratio and a minimum Consolidated Fixed Charge Coverage Ratio, each as defined in the 2018 Credit Agreement. The Consolidated Leverage Ratio could not exceed 2.50:1.00 through December 31, 2019 and may not exceed 2.00:1.00 after December 31, 2020. The Consolidated Fixed Charge Coverage Ratio may not be less than 1.25:1.00.

On July 30, 2020, the Company amended the 2018 Credit Agreement to reflect the incurrence of the PPP Loan. Under the amended agreement, the principal and interest on the PPP Loan are not included in the maximum Consolidated Leverage Ratio or the minimum Consolidated Fixed Charge Coverage Ratio calculations except as to any portion of the PPP Loan that is not ultimately forgiven.

The 2018 Credit Agreement imposes certain other affirmative and negative covenants, including without limitation covenants with respect to the payment of taxes and other obligations, compliance with laws, performance of material contracts, creation of liens, incurrence of indebtedness, investments, dispositions, fundamental changes, restricted payments, changes in the nature of the Company's business, transactions with affiliates, corporate and accounting changes, and sale and leaseback arrangements.

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Mortgage Loan

The Company previously had a mortgage loan (Mortgage Loan) related to its headquarters facility in Middletown, Rhode Island. On April 1, 2019, on the Mortgage Loan's original termination date, the Company repaid in full the outstanding balance of \$2,551. As discussed in Note 15 to the consolidated financial statements, in April 2010 the Company entered into two interest rate swap agreements that were intended to hedge its mortgage interest obligations over the term of the Mortgage Loan by fixing the interest rates specified in the Mortgage Loan to 5.91% for half of the principal amount outstanding as of April 1, 2010 and 6.07% for the remaining half. Both interest rate swap agreements were also settled upon repayment of the Mortgage Loan.

(6) Commitments and Contingencies

The Company has certain operating leases and other commitments for satellite capacity, various equipment, and facilities. The following reflects future minimum payments under operating leases and other commitments that have initial or remaining non-cancelable terms at December 31, 2020:

<u>Years ending December 31,</u>	<u>Commitments (a)</u>
2021	\$ 38,826
2022	24,736
2023	20,591
2024	3,707
2025	173
Thereafter	97
Total minimum payments	\$ 88,130

(a) Includes the future minimum lease payments for the Company's operating leases as seen in Note 17.

Total rent expense incurred under facility operating leases for the years ended December 31, 2020 and 2019 amounted to \$875 and \$675, respectively. Total expense incurred under satellite capacity and equipment operating leases and other commitments for the years ended December 31, 2020 and 2019 amounted to \$34,990 and \$36,390, respectively, which also includes payments for usage charges in excess of the minimum contractual requirements.

In the normal course of business, the Company enters into unconditional purchase order obligations with its suppliers for inventory and other operational purchases. Outstanding and unconditional purchase order obligations were \$19,172 as of December 31, 2020, which the Company expects to fulfill in 2021.

The Company did not have any off-balance sheet commitments, guarantees, or standby repurchase obligations as of December 31, 2020.

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(7) Stockholders' Equity

The Company recognizes stock-based compensation in accordance with the provisions of ASC Topic 718, *Compensation-Stock Compensation*. Stock-based compensation expense, excluding compensation charges related to our employee stock purchase plan, or the ESPP, was \$3,414 and \$4,099 for the year ended December 31, 2020 and 2019, respectively.

The Company is authorized to grant stock options, restricted stock awards and other stock-based awards under its Amended and Restated 2016 Equity and Incentive Plan (the 2016 Plan) with respect to up to 4,800 shares of common stock, an increase of 1,800 shares reserved for issuance under the previous 2016 Plan as approved by our shareholders on June 10, 2020. Options have generally been granted with an exercise price equal to the fair market value of the common stock on the date of grant and have generally provided for vesting in equal annual amounts over four years beginning on the first anniversary of the date of the grant. No options are exercisable for periods of more than five years after date of grant. Under the 2016 Plan, each share issued under awards other than options and stock appreciation rights will reduce the number of shares reserved for issuance by two shares. Shares issued under options or stock appreciation rights will reduce the shares reserved for issuance on a share-for-share basis. The 2016 Plan and earlier equity compensation plans, pursuant to which an aggregate of 14,215 shares of the Company's common stock were reserved for issuance, were all approved by the Company's shareholders. As of December 31, 2020, 1,184 shares were available for future grants. The Compensation Committee of the Board of Directors administers the equity compensation plans, approves the individuals to whom awards will be granted and determines the number of shares and other terms of each award. Outstanding options under the Company's equity compensation plans at December 31, 2020 expire from November 2021 through August 2025. None of the Company's outstanding options includes performance-based or market-based vesting conditions as of December 31, 2020.

(a) Employee Stock Options

The Company has estimated the fair value of each option grant on the date of grant using the Black-Scholes option-pricing model. The expected volatility assumption is based on the historical daily price data of the Company's common stock over a period equivalent to the weighted average expected life of the Company's options. The expected term of options granted is derived using assumed exercise rates based on historical exercise patterns and represents the period of time the options granted are expected to be outstanding. The risk-free interest rate is based on the actual U.S. Treasury zero-coupon rates for bonds matching the expected term of the option as of the option grant date. The dividend yield of zero is based upon the fact that the Company has not historically declared or paid cash dividends, and does not expect to declare or pay dividends in the foreseeable future.

The per share weighted-average fair values of stock options granted during 2020 and 2019 were \$2.88 and \$3.09, respectively. The weighted-average assumptions used to value options as of their grant date were as follows:

	Year Ended December 31,	
	2020	2019
Risk-free interest rate	0.21 %	1.91 %
Expected volatility	44.0 %	36.9 %
Expected life (in years)	4.29	4.27
Dividend yield	0 %	0 %

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The changes in outstanding stock options for the year ended December 31, 2020 and 2019 are as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value
Outstanding at December 31, 2019	1,624	\$ 9.86		
Granted	654	\$ 8.12		
Exercised	(110)	\$ 8.02		
Expired, canceled or forfeited	(134)	\$ 12.14		
Outstanding at December 31, 2020	2,034	\$ 9.25	3.21	\$ 4,288
Exercisable at December 31, 2020	611	\$ 9.83	2.19	\$ 939
Options vested or expected to vest at December 31, 2020	2,034	\$ 9.25	3.21	\$ 4,288

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value
Outstanding at December 31, 2018	1,276	\$ 10.28		
Granted	630	\$ 9.48		
Exercised	(37)	\$ 7.89		
Expired, canceled or forfeited	(245)	\$ 11.35		
Outstanding at December 31, 2019	1,624	\$ 9.86	3.25	\$ 2,325
Exercisable at December 31, 2019	440	\$ 10.26	2.07	\$ 572
Options vested or expected to vest at December 31, 2019	1,624	\$ 9.86	3.25	\$ 2,325

The total aggregate intrinsic value of options exercised was \$269 and \$108 in 2020 and 2019, respectively.

As of December 31, 2020, there was \$3,446 of total unrecognized compensation expense related to stock options, which is expected to be recognized over a weighted-average period of 2.63 years. In 2020 and 2019, the Company recorded compensation charges of \$1,401 and \$1,076, respectively, related to stock options. Compensation costs for options subject only to service conditions that vest ratably are recognized on a straight-line basis over the requisite service period for the entire award. During 2020 and 2019, cash received under stock option plans for exercises was \$880 and \$286, respectively.

(b) Restricted Stock

The Company granted 317 and 322 restricted stock awards to employees under the terms of the 2016 Plan or the Amended and Restated 2006 Stock Incentive Plan (2006 Plan) for the years ended December 31, 2020 and 2019, respectively. The restricted stock awards have generally provided for vesting annually over four years from the date of grant subject to the recipient remaining an employee through the applicable vesting dates. Compensation expense for restricted stock awards is measured at fair value on the date of grant based on the number of shares granted and the quoted market closing price of the Company's common stock. Such value is recognized as expense over the vesting period of the award, net of forfeitures. The weighted-average grant-date fair value of restricted stock granted during 2020 and 2019 was \$8.19 and \$9.67 per share, respectively.

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As of December 31, 2020, there was \$3,851 of total unrecognized compensation expense related to restricted stock awards, which is expected to be recognized over a weighted-average period of 2.52 years. Compensation costs for awards subject only to service conditions that vest ratably are recognized on a straight-line basis over the requisite service period for the entire award. Compensation cost for awards initially subject to certain performance conditions are recognized on a ratable basis over the requisite service period for the entire award. In 2020 and 2019, the Company recorded compensation charges of \$2,013 and \$3,023, respectively, related to restricted stock awards.

Restricted stock activity under the 2006 Plan and the 2016 Plan for 2020 is as follows:

	Number of Shares	Weighted- average grant date fair value
Outstanding at December 31, 2019, unvested	498	\$ 9.51
Granted	317	8.19
Vested	(252)	9.18
Forfeited	(7)	10.00
Outstanding at December 31, 2020, unvested	556	\$ 8.90

(c) Employee Stock Purchase Plan

Under the Company's Amended and Restated 1996 Employee Stock Purchase Plan (ESPP), an aggregate of 1,650 shares of common stock have been reserved for issuance, of which 847 shares remain available as of December 31, 2020.

The ESPP covers all of the Company's employees. Under the terms of the ESPP, eligible employees can elect to have up to six percent of their pre-tax compensation withheld to purchase shares of the Company's common stock on a semi-annual basis at 85% of the market price on the first or last day of each purchase period, whichever is lower. During 2020 and 2019, shares issued under this plan were 44 and 45 shares, respectively. The Company utilizes the Black-Scholes option-pricing model to calculate the fair value of these discounted purchases. The fair value of the 15% discount is recognized as compensation expense over the purchase period. The Company applies a graded vesting approach because the ESPP provides for multiple purchase periods and is, in substance, a series of linked awards. In 2020 and 2019, the Company recorded compensation charges of \$48 and \$60, respectively, related to the ESPP. During 2020 and 2019, cash received under the ESPP was \$336 and \$414, respectively.

(d) Stock-Based Compensation Expense

The following presents stock-based compensation expense, including expense for the ESPP, in the Company's consolidated statements of operations for the years ended December 31, 2020 and 2019.

	2020	2019
Cost of product sales	\$ 165	\$ 240
Cost of service sales	—	—
Research and development	593	815
Sales, marketing and support	682	867
General and administrative	2,022	2,237
	\$ 3,462	\$ 4,159

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(e) Accumulated Other Comprehensive Loss (AOCI)

Comprehensive income (loss) includes net income (loss), unrealized gains and losses from foreign currency translation, and unrealized gains and losses from available for sale marketable securities and changes in fair value related to interest rate swap derivative instruments, net of tax attributes. The components of the Company's comprehensive income (loss) and the effect on earnings for the periods presented are detailed in the accompanying consolidated statements of comprehensive income (loss).

	Foreign Currency Translation	Interest Rate Swaps	Total Accumulated Other Comprehensive Loss
Balance, December 31, 2018	\$ (14,720)	\$ (11)	\$ (14,731)
Other comprehensive income before reclassifications	470	3	473
Amounts reclassified from AOCI	11,483	8	11,491
Net other comprehensive income	11,953	11	11,964
Balance, December 31, 2019	(2,767)	—	(2,767)
Other comprehensive loss	(465)	—	(465)
Net other comprehensive loss	(465)	—	(465)
Balance, December 31, 2020	\$ (3,232)	\$ —	\$ (3,232)

For additional information, see Note 2, "Marketable Securities", and see Note 15, "Derivative Instruments and Hedging Activities."

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(8) Income Taxes

Income tax expense (benefit) for the years ended December 31, 2020 and 2019 attributable to loss from operations is presented below.

	Current	Deferred	Total
Year ended December 31, 2020			
Federal	\$ 240	\$ —	\$ 240
State	—	—	—
Foreign	321	(387)	(66)
	<u>\$ 561</u>	<u>\$ (387)</u>	<u>\$ 174</u>
Year ended December 31, 2019			
Federal	\$ (196)	\$ (4,741)	\$ (4,937)
State	(28)	(29)	(57)
Foreign	1,143	(152)	991
	<u>\$ 919</u>	<u>\$ (4,922)</u>	<u>\$ (4,003)</u>

Actual income tax expense (benefit) differs from the “expected” income tax expense (benefit) computed by applying the United States Federal statutory income tax rate of 21% for both 2020 and 2019 to loss before tax expense, as follows:

	Year Ended December 31,	
	2020	2019
Income tax benefit at Federal statutory income tax rate	\$ (4,571)	\$ (4,203)
Increase (decrease) in income taxes resulting from:		
State income tax benefit, net of federal benefit	(600)	(610)
State research and development, investment credits	(213)	71
Non-deductible meals & entertainment	22	36
Non-deductible stock compensation expense	19	18
Foreign tax rate differential	235	(4)
Federal research and development credits	(707)	(490)
Uncertain tax positions	39	(110)
Provision to tax return adjustments	144	21
Change in valuation allowance	3,980	934
Loss on legal entity dissolution	—	244
Impairment of goodwill and intangibles	1,834	—
Other	(8)	90
Income tax expense (benefit)	<u>\$ 174</u>	<u>\$ (4,003)</u>

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Loss from continuing operations before income tax expense (benefit) determined by tax jurisdiction, are as follows:

	Year Ended December 31,	
	2020	2019
United States	\$ (11,862)	\$ (22,452)
Foreign	(9,904)	2,440
Total	\$ (21,766)	\$ (20,012)

Deferred tax assets and liabilities for the periods presented consisted of the following:

	December 31,	
	2020	2019
Deferred tax assets:		
Accounts receivable, due to allowance for doubtful accounts	\$ 221	\$ 373
Inventories	1,209	776
Operating loss carry-forwards	2,744	1,343
Stock-based compensation expense	874	807
Property and equipment, due to difference in depreciation	841	47
Research and development tax credit carry-forwards	5,640	5,243
Foreign tax credit carry-forwards	2,345	2,345
State tax credit carry-forwards	3,838	3,146
Capitalized research and development	3,154	3,263
Warranty reserve	429	523
Accrued expenses	1,216	845
Lease liability	1,574	1,378
Gross deferred tax assets	24,085	20,089
Less valuation allowance	(22,432)	(18,452)
Total deferred tax assets	1,653	1,637
Deferred tax liabilities:		
Purchased intangible assets	(384)	(844)
Property and equipment, due to differences in depreciation	(50)	(132)
Right of use asset	(1,564)	(1,378)
Total deferred tax liabilities	(1,998)	(2,354)
Net deferred tax liability	\$ (345)	\$ (717)
Deferred income tax asset	\$ 73	\$ 45
Deferred income tax liability	\$ (418)	\$ (762)

As of December 31, 2020 the Company has federal and state tax loss carryforwards of approximately \$9,180 and \$12,317, respectively. The federal loss carryforward has no expiration date. The state losses expire through the year 2040. As of December 31, 2020, the Company had federal research and development tax credit carry-forwards in the amount of \$5,631 and other general business credits of \$9 that expire in years 2028 through 2040. As of December 31, 2020, the Company had foreign tax credit carry-forwards in the amount of \$2,345 that expire in years 2026 through 2027. As of December 31, 2020, the Company had state research and development tax credit carry-forwards in the amount of \$4,772 that expire in years 2021 through 2027. The Company also had other state tax credit carry-forwards of \$86 available to reduce future state tax expense that expire in years 2021 through 2027.

The Company's ability to utilize these net operating loss carry-forwards and tax credit carry-forwards may be limited in the future if the Company experiences an ownership change pursuant to Internal Revenue Code Section 382. An ownership change occurs when the ownership percentages of 5% or greater stockholders change by more than 50% over a three-year period.

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In assessing the realizability of its net deferred tax assets, the Company considered whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. As of December 31, 2020, the Company concluded that a net increase of \$3,980 of the valuation allowance was appropriate. The change was the result of an increase in domestic tax credit and net operating loss balances offset by a decrease attributed to the derecognition of foreign net operating losses. As part of the Company's analysis, the Company evaluated, among other factors, its recent history of generating tax losses and its near-term forecasts of future taxable income or losses.

As of December 31, 2020, unremitted foreign earnings, which were not significant, have been retained by the Company's foreign subsidiaries for indefinite reinvestment. Upon repatriation of those earnings, in the form of dividends or otherwise, the Company could be subject to state tax and withholding taxes payable to various foreign countries.

The Company establishes reserves for uncertain tax positions based on management's assessment of exposure associated with tax deductions, permanent tax differences, and tax credits. The tax reserves are analyzed periodically and adjustments are made as events occur that warrant adjustment to the reserve. The Company's policy is to recognize interest and penalties related to unrecognized tax benefits as a component of income tax expense.

The aggregate changes in the total gross amount of unrecognized tax benefits are as follows:

	Year Ended December 31,	
	2020	2019
Unrecognized tax benefits as of January 1	\$ 1,897	\$ 494
Gross (decrease) increase in unrecognized tax benefits - prior year tax positions	(105)	1,524
Gross increase in unrecognized tax benefits - current year tax positions	—	78
Lapse of statute of limitations	(21)	(199)
Unrecognized tax benefits as of December 31	<u>\$ 1,771</u>	<u>\$ 1,897</u>

All unrecognized tax benefits as of December 31, 2020 and 2019, if recognized, would result in a reduction of the Company's effective tax rate.

The Company recorded interest and penalties of \$61 and \$11 in its consolidated statement of operations for the years ended December 31, 2020 and 2019, respectively. Total accrued interest and penalties related to tax positions taken on our tax returns and included in non-current income taxes payable was approximately \$208 and \$147 as of December 31, 2020 and 2019, respectively.

The timing of any resolution of income tax examinations is highly uncertain, as are the amounts and timing of any settlement payment. These events could cause fluctuations in the balance sheet classification of current and non-current assets and liabilities. The Company estimates that it is reasonably possible that the balance of unrecognized tax benefits as of December 31, 2020 may decrease approximately \$25 in the next twelve months as a result of a lapse of statutes of limitation and settlements with taxing authorities.

The Company's tax jurisdictions include the United States, the United Kingdom, Denmark, Cyprus, Norway, Brazil, Singapore, Hong Kong, Japan, and India. In general, the statute of limitations with respect to the Company's United States federal income taxes has expired for years prior to 2017, and the relevant state and foreign statutes vary. However, preceding years remain open to examination by United States federal and state and foreign taxing authorities to the extent of future utilization of net operating losses and research and development tax credits generated in each preceding year.

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(9) Goodwill and Intangible Assets

Intangible assets arose from an acquisition made prior to 2013 and the acquisition of KVH Media Group (acquired as Headland Media Limited) in May 2013. Intangibles arising from the acquisition made prior to 2013 were amortized on a straight-line basis over an estimated useful life of 7 years. Intangibles arising from the acquisition of KVH Media Group are being amortized on a straight-line basis over the estimated useful life of: (i) 10 years for acquired subscriber relationships and (ii) 15 years for distribution rights. Due to the impairment of distribution rights during the Company's 2020 annual impairment test, the estimated useful life of distribution rights was reduced to 1 year. The intangibles arising from the KVH Media Group were recorded in pounds sterling and fluctuations in exchange rates cause these amounts to increase or decrease from time to time.

In January 2017, the Company completed the acquisition of certain subscriber relationships from a third party. This acquisition did not meet the definition of a business under ASC 2017-01, *Business Combinations (Topic 805)-Clarifying the Definition of a Business*, which the Company adopted on October 1, 2016. The Company ascribed \$100 of the initial purchase price to the acquired subscriber relationships definite-lived intangible assets with an initial estimated useful life of 10 years. Under the asset purchase agreement, the purchase price includes a component of contingent consideration under which the Company is required to pay a percentage of recurring revenues received from the acquired subscriber relationships through 2026 up to a maximum annual payment of \$114. As of December 31, 2020, the carrying value of the intangible assets acquired in the asset acquisition was \$346. As the acquisition did not represent a business combination, the contingent consideration arrangement is recognized only when the contingency is resolved and the consideration is paid or becomes payable. The amounts payable under the contingent consideration arrangement, if any, will be included in the measurement of the cost of the acquired subscriber relationships. An additional \$75 and \$94 of consideration was earned under the contingent consideration arrangement during the years ended December 31, 2020 and 2019, respectively.

Acquired intangible assets are subject to amortization. The following table summarizes other intangible assets as of December 31, 2020 and 2019, respectively:

	<u>Gross Carrying Amount</u>	<u>Accumulated Amortization</u>	<u>Net Carrying Value</u>
December 31, 2020			
Subscriber relationships	\$ 7,977	\$ 5,958	\$ 2,019
Distribution rights	311	76	235
Internally developed software	446	446	—
Proprietary content	153	153	—
Intellectual property	2,284	2,284	—
	<u>\$ 11,171</u>	<u>\$ 8,917</u>	<u>\$ 2,254</u>
December 31, 2019			
Subscriber relationships	\$ 7,860	\$ 5,231	\$ 2,629
Distribution rights	4,313	1,999	2,314
Internally developed software	446	446	—
Proprietary content	153	153	—
Intellectual property	2,284	2,284	—
	<u>\$ 15,056</u>	<u>\$ 10,113</u>	<u>\$ 4,943</u>

Amortization expense related to intangible assets was \$1,004 and \$980 for years ended December 31, 2020 and 2019, respectively, and was categorized as general and administrative expense.

As of December 31, 2020, the total weighted average remaining useful lives of the definite-lived intangible assets was 2.0 years and the weighted average remaining useful lives by the definite-lived intangible asset category are as follows:

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Intangible Asset	Weighted Average Remaining Useful Life in Years
Subscriber relationships	2.5
Distribution rights	0.8

Estimated future amortization expense for intangible assets recorded by the Company at December 31, 2020 is as follows:

Years ending December 31,	Amortization Expense
2021	\$ 1,011
2022	776
2023	308
2024	49
2025	49
Thereafter	61
Total amortization expense	<u>\$ 2,254</u>

The changes in the carrying amount of intangible assets during the year ended December 31, 2020 is as follows:

	2020
Balance at December 31, 2019	\$ 4,943
Amortization expense	(1,004)
Intangibles assets acquired in asset acquisition	75
Impairment of distribution rights	(1,758)
Foreign currency translation adjustment	(2)
Balance at December 31, 2020	<u>\$ 2,254</u>

Goodwill is recorded when the consideration for an acquisition exceeds the fair value of net tangible and identifiable intangible assets acquired. All of the Company's goodwill as of December 31, 2020 relates to its mobile connectivity reportable segment. None of the Company's goodwill is deductible for tax purposes. The changes in the carrying amount of goodwill during the year ended December 31, 2020 is as follows:

	Goodwill
Balance at December 31, 2019	\$ 15,408
Impairment of KVH Media Group	(8,732)
Foreign currency translation adjustment	(84)
Balance at December 31, 2020	<u>\$ 6,592</u>

(10) 401(k) Plan

The Company has a 401(k) Plan (the Plan) for all eligible employees. Participants may defer a portion of their pre-tax or post-tax earnings subject to limits determined by the Internal Revenue Service. Participants age 50 or older may be eligible to make additional contributions. As of December 31, 2020, the Company matches contributions by the Plan participants up to 6%. The Company's contributions vest over a five-year period from the date of hire. During a five and half month period in 2020, as a result of the uncertainty caused by the COVID-19 pandemic, the Company paused matching contributions. The Company matching contributions were \$561 and \$822 for the years ended December 31, 2020 and 2019, respectively. In addition, the Company may make additional contributions to the Plan at the discretion of the Compensation Committee of the Board of Directors. There were no discretionary contributions in 2020 and 2019.

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(11) Revenue from Contracts with Customers (ASC 606)

Revenue is recognized when a customer obtains control of promised products and services. The amount of revenue recognized reflects the consideration which the Company expects to be entitled to receive in exchange for these products and services

Out-of-Period Error

During the year ended December 31, 2019, the Company identified an out-of-period immaterial error related to the implementation and application of ASC 606 with respect to the recognition of revenue associated with sales-type leases, which impacted our September 30, 2019 consolidated interim financial statements. In general, the error was an incorrect deferral of product revenue and associated expenses for sales-type leases rather than to recognize those items upon shipment. The balance sheet impact of correcting January 1, 2019 sales-type leases in effect as of January 1, 2018 was a reduction in accumulated deficit of \$1,680, comprised of a reduction in current contract assets of \$2,132, non-current contract assets of \$3,110, current contract liabilities of \$2,970, non-current contract liabilities of \$4,018 and non-current deferred income tax asset of \$66. The correction recorded during the year ended December 31, 2019 had the effect of increasing net loss by \$250, comprised primarily of a \$1,350 increase in product sales, a \$1,591 increase in costs of product sales, and a \$15 increase in sales, marketing and support expenses. There was no impact to the statement of operations for December 31, 2020.

Disaggregation of Revenue

The following table summarizes net sales from contracts with customers for the years ended December 31, 2020 and 2019:

	Year Ended December 31,	
	2020	2019
Mobile connectivity product, transferred at point in time	\$ 25,140	\$ 26,419
Mobile connectivity product, transferred over time ⁽¹⁾	2,723	5,204
Mobile connectivity service	91,590	90,392
Inertial navigation product	36,756	30,302
Inertial navigation service	2,524	5,576
Total net sales	\$ 158,733	\$ 157,893

(1) Reflects the correction discussed above.

Revenue recognized during the years ended December 31, 2020 and 2019 from amounts included in contract liabilities at the beginning of the fiscal year was approximately \$2,586 and \$2,736, respectively.

For mobile connectivity product sales, the delivery of the Company's performance obligations are generally transferred to the customer, and therefore associated revenue is generated, at a point in time, with the exception of certain mini-VSAT contracts which are transferred to customers over time. For mobile connectivity service sales, the delivery of the Company's performance obligations are transferred to the customer over time, and therefore associated revenue is recognized over time. For inertial navigation product sales, the delivery of the Company's performance obligations are generally transferred to the customer, and therefore associated revenue is generated, at a point in time. For inertial navigation service sales, the Company's performance obligations are generally transferred to customers over time, and therefore associated revenue is recognized over time

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Business and Credit Concentrations

Concentrations of risk with respect to trade accounts receivable are generally limited due to the large number of customers and their dispersion across several geographic areas. Although the Company does not foresee that credit risk associated with these receivables will deviate from historical experience, repayment is dependent upon the financial stability of those individual customers. The Company establishes allowances for potential bad debts and evaluates, on a monthly basis, the adequacy of those reserves based upon historical experience and its expectations for future collectability concerns. The Company performs ongoing credit evaluations of the financial condition of its customers and generally does not require collateral.

The Company had no customers that accounted for 10% or more of its consolidated net sales for the years ended December 31, 2020 or 2019 or accounts receivables as of December 31, 2020 or 2019.

Certain components from third parties used in the Company's products are procured from single sources of supply. The failure of a supplier, including a subcontractor, to deliver on schedule could delay or interrupt the Company's delivery of products and thereby materially adversely affect the Company's revenues and operating results.

(12) Segment Reporting

The Company's reportable segments are mobile connectivity and inertial navigation. The financial results of each segment are based on revenues from external customers, cost of revenue and operating expenses that are directly attributable to the segment and an allocation of costs from shared functions. These shared functions include, but are not limited to, facilities, human resources, information technology, and engineering. Allocations are made based on management's judgment of the most relevant factors, such as head count, number of customer sites, or other operational data that contribute to the shared costs. Certain corporate-level costs have not been allocated as they are not directly attributable to either segment. These costs primarily consist of broad corporate functions, including executive, legal, finance, and costs associated with corporate actions. Segment-level asset information has not been provided as such information is not reviewed by the chief operating decision-maker for purposes of assessing segment performance and allocating resources. There are no significant inter-segment sales or transactions. As discussed in Note 1, the Company's Videotel business, which had previously been included in the mobile connectivity segment, has been classified as discontinued operations and therefore excluded from the segment information below.

The Company's performance is impacted by the levels of activity in the marine and land mobile markets and defense sectors, among others. Performance in any particular period could be impacted by the timing of sales to certain large customers.

The mobile connectivity segment primarily manufactures and distributes a comprehensive family of mobile satellite antenna products and services that provide access to television, the Internet and voice services while on the move. Product sales within the mobile connectivity segment accounted for approximately 18% and 20% of our consolidated net sales for 2020 and 2019, respectively. Sales of mini-VSAT Broadband airtime service accounted for approximately 51% and 48% of our consolidated net sales for 2020 and 2019, respectively.

The inertial navigation segment manufactures and distributes a portfolio of digital compass and fiber optic gyro (FOG)-based systems that address the rigorous requirements of military and commercial customers and provide reliable, easy-to-use and continuously available navigation and pointing data. The principal product categories in this segment include the FOG-based inertial measurement units (IMUs) for precision guidance, FOGs for tactical navigation as well as pointing and stabilization systems, and digital compasses that provide accurate heading information for demanding applications, security, automation and access control equipment and systems. Sales of FOG-based guidance and navigation systems within the inertial navigation segment accounted for approximately 16% of consolidated net sales for both 2020 and 2019.

No other single product class accounts for 10% or more of consolidated net sales.

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The Company operates in a number of major geographic areas, including internationally. Revenues from international locations primarily include Canada, European Union countries, and other European countries, as well as countries in Africa, Asia/Pacific, the Middle East, and India. Revenues are based upon customer location and internationally represented 64% and 54% of consolidated net sales for 2020 and 2019, respectively. No individual foreign country represented 10% or more of the Company's consolidated net sales for 2020 or 2019.

As of December 31, 2020 and 2019, the long-lived tangible assets related to the Company's international subsidiaries were less than 10% of the Company's long-lived tangible assets and were deemed not material.

Net sales and operating income (loss) for the Company's reporting segments and the Company's loss from continuing operations before income tax expense (benefit) for the years ended December 31, 2020 and 2019 were as follows:

	For the year ended December 31,	
	2020	2019
Net sales:		
Mobile connectivity	\$ 119,453	\$ 122,015
Inertial navigation	39,280	35,878
Consolidated net sales	<u>\$ 158,733</u>	<u>\$ 157,893</u>
Operating (loss) income:		
Mobile connectivity ⁽¹⁾	\$ (10,071)	\$ (5,569)
Inertial navigation	4,799	2,961
Subtotal	<u>(5,272)</u>	<u>(2,608)</u>
Unallocated, net	<u>(17,665)</u>	<u>(18,488)</u>
Loss from operations	(22,937)	(21,096)
Net interest and other income	1,171	1,084
Loss from continuing operations before income tax expense (benefit)	<u>\$ (21,766)</u>	<u>\$ (20,012)</u>

(1) Includes an impairment charge of \$10,490 for the KVH Media Group reporting unit within the mobile connectivity segment as of December 31, 2020.

Depreciation expense and amortization expense for the Company's segments are presented in the table that follows for the periods presented:

	For the year ended December 31,	
	2020	2019
Depreciation expense:		
Mobile connectivity	\$ 8,726	\$ 7,084
Inertial navigation	1,325	1,155
Unallocated	608	559
Total consolidated depreciation expense	<u>\$ 10,659</u>	<u>\$ 8,798</u>
Amortization expense:		
Mobile connectivity	\$ 1,004	\$ 980
Inertial navigation	—	—
Unallocated	—	—
Total consolidated amortization expense	<u>\$ 1,004</u>	<u>\$ 980</u>

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(13) Share Buyback Program

On October 4, 2019, the Company's Board of Directors authorized a share repurchase program pursuant to which the Company was authorized to purchase up to 1,000 shares of the Company's common stock. The program expired on October 4, 2020. Under the repurchase program, the Company, at management's discretion, was authorized to repurchase shares on the open market from time to time, in privately negotiated transactions or block transactions, or through an accelerated repurchase agreement.

In January 2020, the Company repurchased 36 shares of common stock in open market transactions at a cost of approximately \$390. The total amount the Company repurchased under the repurchase program since the inception of the October 4, 2019 repurchase program was 151 shares of common stock for an approximate cost of \$1,690. Except as noted above, there were no other repurchase programs outstanding during 2020.

(14) Fair Value Measurements

ASC 820, *Fair Value Measurements and Disclosures* (ASC 820), provides a framework for measuring fair value and requires expanded disclosures regarding fair value measurements. ASC 820 defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820 also establishes a fair value hierarchy, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. ASC 820 describes three levels of inputs that may be used to measure fair value:

- Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities. The Company's Level 1 assets are investments in money market mutual funds and United States treasuries.
- Level 2: Quoted prices for similar assets or liabilities in active markets; or observable prices that are based on observable market data, based on directly or indirectly market-corroborated inputs. The Company has no Level 2 assets or liabilities.
- Level 3: Unobservable inputs that are supported by little or no market activity, and are developed based on the best information available given the circumstances. The Company has no Level 3 assets.

Assets and liabilities measured at fair value are based the valuation techniques identified in the table below. The valuation techniques are:

- (a) Market approach—prices and other relevant information generated by market transactions involving identical or comparable assets.

The following tables present financial assets and liabilities at December 31, 2020 and December 31, 2019 for which the Company measures fair value on a recurring basis, by level, within the fair value hierarchy:

December 31, 2020	Total	Level 1	Level 2	Level 3	Valuation Technique
Assets					
Money market mutual funds	\$ 20,142	\$ 20,142	\$ —	\$ —	(a)
United States treasuries	4,999	4,999	—	—	(a)
December 31, 2019					
Assets					
Money market mutual funds	\$ 29,907	\$ 29,907	\$ —	\$ —	(a)

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Certain financial instruments are carried at cost on the consolidated balance sheets, which approximates fair value due to their short-term, highly liquid nature. These instruments include cash and cash equivalents, accounts receivable, accounts payable, accrued expenses and debt obligations. The carrying amount of the Company's operating and financing lease liabilities approximates fair value based on currently available quoted rates of similarly structured borrowings.

Assets Measured and Recorded at Fair Value on a Nonrecurring Basis

The Company's non-financial assets, such as goodwill, intangible assets, and other long-lived assets resulting from business combinations, are measured at fair value using income approach valuation methodologies at the date of acquisition and subsequently re-measured if an impairment exists. There was no impairment of the Company's non-financial assets noted as of December 31, 2019. During 2020, the Company recorded an impairment charge of \$10,490 to goodwill and intangible assets. See Note 1(k) and Note 9 for additional details. The Company does not have any liabilities that are recorded at fair value on a non-recurring basis.

(15) Derivative Instruments and Hedging Activities

Effective April 1, 2010, in order to reduce the volatility of cash outflows that arise from changes in interest rates, the Company entered into two interest rate swap agreements. These interest rate swap agreements were intended to hedge the Company's mortgage loan related to its headquarters facility in Middletown, Rhode Island by fixing the interest rates specified in the mortgage loan to 5.9% for half of the principal amount outstanding and 6.1% for the remaining half of the principal amount outstanding as of April 1, 2010 until the mortgage loan expired on April 1, 2019. The Company does not use derivatives for speculative purposes. For a derivative that is designated as a cash flow hedge, changes in the fair value of the derivative are recognized in accumulated other comprehensive (loss) income (AOCI) to the extent the derivative is effective at offsetting the changes in the cash flows being hedged until the hedged item affects earnings. As the Company made the required principal and interest payments under the mortgage loan and the related interest rate swaps were settled, the Company reclassified the amounts recorded in AOCI related to the changes in the fair value of the settled interest rate swaps to earnings. To the extent there was any hedge ineffectiveness, changes in fair value relating to the ineffective portion were immediately recognized in earnings in other income (expense) in the consolidated statements of operations. The interest rate swap was recorded within accrued other liabilities on the balance sheet. The critical terms of the interest rate swaps were designed to mirror the terms of the Company's mortgage loans. The Company designated these derivatives as cash flow hedges of the variability of the LIBOR-based interest payments on principal over a nine-year period, which ended on April 1, 2019. On April 1, 2019, the two interest rate swaps matured and the Company made its final payment for its mortgage loan thereafter.

(16) Legal Matters

From time to time, the Company is involved in litigation incidental to the conduct of its business. In the ordinary course of business, the Company is a party to inquiries, legal proceedings and claims including, from time to time, disagreements with vendors and customers. The Company is not a party to any lawsuit or proceeding that, in management's opinion, is likely to materially harm the Company's business, results of operations, financial condition or cash flows.

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(17) Leases*Lessee*

The Company has operating leases for office facilities, equipment, and satellite service capacity and related equipment. Lease expense was \$3,413 and \$5,079 for the year ended December 31, 2020 and 2019, respectively. Short-term operating lease costs was \$244 and \$160 for the years ended December 31, 2020 and 2019, respectively. Sublease income was \$134 and \$132 for the years ended December 31, 2020 and 2019, respectively. Maturities of lease liabilities as of December 31, 2020 under operating leases having an initial or remaining non-cancelable term of one year or more are as follows:

2021	\$	4,116
2022		2,076
2023		634
2024		418
2025 and thereafter		295
Total undiscounted lease payments	\$	7,539
Less amount representing interest	\$	(509)
Present value of operating lease liabilities	\$	7,030
Less current installments of obligation under current-operating lease liabilities	\$	3,826
Obligations under long-term operating lease liabilities, excluding current installments	\$	3,204
Weighted-average remaining lease term - operating leases (years)		2.38
Weighted-average discount rate - operating leases		5.50 %

During the first quarter of 2018, the Company entered into a five-year financing lease for three satellite hubs for its HTS network. As of December 31, 2020, the gross costs and accumulated depreciation associated with this lease are included in revenue generating assets and amounted to \$3,068 and \$1,284, respectively. The obligations under financing leases are stated at the present value of minimum lease payments.

The property and equipment held under this financing lease are amortized on a straight-line basis over the seven-year estimated useful life of the asset, since the lease meets the bargain purchase option criteria. Amortization of assets held under financing leases is included within depreciation expense. Depreciation expense for these capital assets was \$438 and \$439 for the years ended December 31, 2020 and 2019, respectively.

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The future undiscounted lease payments under this financing lease as of December 31, 2020 are:

2021	\$	624
2022		624
2023		45
Total undiscounted lease payments	\$	1,293
Less amount representing interest	\$	(9)
Present value of financing lease liabilities	\$	1,284
Less current installments of obligation under accrued other	\$	618
Obligations under other long-term liabilities, excluding current installments	\$	666
Weighted-average remaining lease term - finance leases (years)		2.17
Weighted-average discount rate - finance leases		1.53 %

Lessor

The Company enters into leases with certain customers primarily of the TracPhone mini-VSAT systems. These leases are classified as sales-type leases as title of the equipment transfers to the customer at the end of the lease term. The Company records the leases at a price typically equivalent to normal selling price and in excess of the cost or carrying amount. Upon delivery, the Company records the net present value of all payments under these leases as revenue, and the related costs of the product are charged to cost of sales. Interest income is recognized throughout the lease term (typically three to five years) using an implicit interest rate. The sales-type leases do not have unguaranteed residual assets.

The current portion of the net investment in these leases was \$4,353 as of December 31, 2020 and the non-current portion of the net investment in these leases was \$7,774 as of December 31, 2020. The current portion of the net investment in the leases is included in accounts receivable, net of allowance for doubtful accounts on the accompanying consolidated balance sheets and the non-current portion of the net investment in these leases is included in other non-current assets on the accompanying consolidated balance sheets. Interest income from sales-type leases was \$859 and \$699 during the year ended December 31, 2020 and 2019, respectively.

The future undiscounted cash flows from these leases as of December 31, 2020 are:

2021	\$	5,152
2022		3,417
2023		2,796
2024		1,935
2025		590
Total undiscounted cash flows	\$	13,890
Present value of lease payments	\$	12,127
Difference between undiscounted cash flows and discounted cash flows	\$	1,763

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(18) Discontinued Operations

During the second quarter of 2019, the Company sold its Videotel business. The Company determined that the sale met the requirements for reporting as discontinued operations in accordance with Accounting Standards Codification (ASC) 205-20.

The following table presents a reconciliation of the major financial line items constituting the results for discontinued operations to the net income from discontinued operations, net of tax, presently separately in the Company's consolidated statements of operations:

	Year Ended December 31,	
	2020	2019
Sales:		
Service sales	\$ —	\$ 5,769
Costs, expenses and other expense, net:		
Costs of service sales	—	1,807
Sales, marketing and support	—	1,606
General and administrative	—	1,619
Other expense, net	—	(23)
Income from discontinued operations before tax expense	—	714
Gain on sale of discontinued operations before tax expense	—	53,711
Total income from discontinued operations before tax expense	\$ —	\$ 54,425
Income tax expense on discontinued operations	—	5,161
Income from discontinued operations, net of taxes	\$ —	\$ 49,264
Net income from discontinued operations per common share		
Basic and diluted	\$ —	\$ 2.82
Weighted average number of common shares outstanding:		
Basic and diluted	17,669	17,459

The following table presents supplemental cash flow information of the discontinued operations:

	Year Ended December 31,	
	2020	2019
Cash used in operating activities—discontinued operations	\$ —	\$ (2,638)
Cash provided by investing activities—discontinued operations	\$ —	\$ 87,986

KVH INDUSTRIES, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
December 31, 2020 and 2019
(in thousands, except per share amounts)

(19) Quarterly Financial Results (Unaudited)

The following financial information for interim periods includes transactions which affect comparability of the quarterly results for the years ended December 31, 2020 and 2019.

Financial information for interim periods was as follows:

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	(in thousands, except per share amounts)			
2020				
Product sales	\$ 13,094	\$ 13,949	\$ 16,650	\$ 20,926
Service sales	23,474	22,977	24,462	23,201
Cost of product sales	9,636	9,554	10,422	11,996
Cost of service sales	15,195	14,378	14,875	15,069
Operating expenses ^(a)	19,385	16,430	16,318	28,412
Loss from continuing operations ^(a)	(7,648)	(3,436)	(503)	(11,350)
Net loss from continuing operations ^(a)	(6,214)	(3,552)	(537)	(11,637)
Net loss ^(a)	\$ (6,214)	\$ (3,552)	\$ (537)	\$ (11,637)
Net loss continuing operations per share ^(b) :				
Basic	\$ (0.35)	\$ (0.20)	\$ (0.03)	\$ (0.65)
Diluted	\$ (0.35)	\$ (0.20)	\$ (0.03)	\$ (0.65)
Net loss per share ^(b) :				
Basic	\$ (0.35)	\$ (0.20)	\$ (0.03)	\$ (0.65)
Diluted	\$ (0.35)	\$ (0.20)	\$ (0.03)	\$ (0.65)
2019				
Product sales ^(c)	\$ 13,215	\$ 15,189	\$ 14,808	\$ 18,713
Service sales	23,161	24,541	24,503	23,763
Cost of product sales ^(c)	8,284	12,649	10,823	11,131
Cost of service sales	15,373	15,379	15,029	15,475
Operating expenses ^(c)	18,953	18,381	18,317	19,195
Loss from continuing operations ^(c)	(6,234)	(6,679)	(4,858)	(3,325)
Net loss from continuing operations ^(c)	(6,497)	(3,294)	(3,308)	(2,910)
Net income (loss) from discontinued operations	243	50,630	(1,036)	(573)
Net (loss) income ^(c)	\$ (6,254)	\$ 47,336	\$ (4,344)	\$ (3,483)
Net loss continuing operations per share ^(b) :				
Basic	\$ (0.38)	\$ (0.19)	\$ (0.19)	\$ (0.17)
Diluted	\$ (0.38)	\$ (0.19)	\$ (0.19)	\$ (0.17)
Net income (loss) discontinued operations per share ^(b) :				
Basic	\$ 0.01	\$ 2.90	\$ (0.06)	\$ (0.03)
Diluted	\$ 0.01	\$ 2.90	\$ (0.06)	\$ (0.03)
Net (loss) income per share ^(b) :				
Basic	\$ (0.36)	\$ 2.71	\$ (0.25)	\$ (0.20)
Diluted	\$ (0.36)	\$ 2.71	\$ (0.25)	\$ (0.20)

- a. Includes an impairment charge of \$10,490 for the KVH Media Group reporting unit within the mobile connectivity segment during the fourth quarter of 2020.
- b. Net loss per share is computed independently for each of the quarters. Therefore, the net loss per share for the four quarters may not equal the annual net loss per share data.
- c. The Company's product sales, costs of product sales, sales, marketing and support expense, income tax benefit and net loss from continuing operations for 2019 include adjustments to correct immaterial prior period accounting errors related to the implementation and application of ASC 606. See Note 11 of our consolidated financial statements for more information.

List of Subsidiaries

KVH Industries A/S	Denmark
KVH Industries Pte. Ltd.	Singapore
KVH Industries Brasil Comunicacao Por Satelite Ltda.	Brazil
KVH Industries Norway AS	Norway
KVH Industries Japan Co. Ltd.	Japan
KVH Industries UK Ltd.	United Kingdom
KVH Media Group Ltd.	United Kingdom
KVH Media Group Entertainment Ltd.	United Kingdom
KVH Media Group Communication Ltd.	United Kingdom
KVH Media Group International Ltd.	United Kingdom
KVH Media Group Ltd.	Cyprus
KVH Media Group India Private Ltd	India

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated March 3, 2021, with respect to the consolidated financial statements and internal control over financial reporting included in the Annual Report of KVH Industries, Inc. on Form 10-K for the year ended December 31, 2020. We consent to the incorporation by reference of said reports in the Registration Statements of KVH Industries, Inc. on Forms S-3 (File No. 333-240358 and File No. 333-218857) and Forms S-8 (File Nos. 333-240354, 333-212959, 333-190541, 333-168406, 333-160230, 333-141404, 333-112341, 333-67556, and 333-08491).

/s/ GRANT THORNTON LLP

Boston, Massachusetts
March 3, 2021

Certification

I, Martin A. Kits van Heyningen, certify that:

1. I have reviewed this annual report on Form 10-K of KVH Industries, 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.

Date: March 3, 2021

/S/ MARTIN A. KITS VAN HEYNINGEN

Martin A. Kits van Heyningen

President, Chief Executive Officer and

Chairman of the Board

Certification

I, Brent C. Brunn, certify that:

1. I have reviewed this annual report on Form 10-K of KVH Industries, 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.

Date: March 3, 2021

/S/ BRENT C. BRUNN

Brent C. Brunn

Interim Chief Financial Officer and Chief Operating
Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of KVH Industries, Inc. (the “Company”) for the year ended December 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), each of the undersigned President, Chief Executive Officer and Chairman of the Board, and Chief Financial Officer of the Company, certifies, to the best knowledge and belief of the signatory, pursuant to 18 U.S.C 1350, as adopted pursuant to Section 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 Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the by

/S/ MARTIN A. KITS VAN HEYNINGEN

Martin A. Kits van Heyningen

President, Chief Executive Officer and
Chairman of the Board

Date: March 3, 2021

/S/ BRENT C. BRUUN

Brent C. Brunn

Interim Chief Financial Officer and Chief Operating
Officer

Date: March 3, 2021