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

FORM 10-K

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2019

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 1-11916

WIRELESS TELECOM GROUP, INC.
(Exact name of registrant as specified in its charter)

New Jersey	22-2582295
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
25 Eastmans Road, Parsippany, New Jersey	07054
(Address of principal executive offices)	(Zip Code)

(Registrant's Telephone Number, Including Area Code) 973-386-9696

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, par value $.01 per share	WTT	NYSE American

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

none
(Title of Class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes [ ] No [**X**]

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 [**X**] 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 [**X**] No [ ]

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes [**X**] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [**X**]

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

Large accelerated filer [ ]   Accelerated filer [ ]

Non-accelerated filer [ ]   Smaller reporting company [**X**]   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 standard provided pursuant to Section 13(a) of the Exchange Act. [ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes [ ] No [**X**]

The aggregate market value of the registrants' Common Stock, $.01 par value, held by non-affiliates and computed by reference to the closing price as reported by NYSE American on June 30, 2019: $28,924,861. As of March 6, 2020, there were 21,647,571 shares of the Company's common stock ($.01 par value) outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Proxy Statement relating to the 2020 Annual Meeting of Stockholders (the "2020 Proxy Statement") are incorporated by reference into Part III of this Annual Report on Form 10-K.

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PART I

Item 1. Business

Overview

Wireless Telecom Group, Inc., a New Jersey corporation, together with its subsidiaries ("we", "us", "our" or the "Company"), specializes in the design and manufacture of advanced radio frequency and microwave devices which enable the development, testing and deployment of wireless technology. The Company provides unique, highly customized and configured solutions which drive innovation across a wide range of traditional and emerging wireless technologies.

In 2019, Wireless Telecom Group was comprised of four brands – Microlab, Boonton, Noisecom, and CommAgility – organized into three reporting segments – Network Solutions, Test and Measurement and Embedded Solutions. Since our acquisition of Holzworth Instrumentation, Inc. ("Holzworth") in February of 2020, we are also offering the Holzworth brand in our Test and Measurement segment.

Our customers include wireless carriers, defense contractors, military and government agencies, satellite communication companies, network equipment manufacturers, tower companies, semiconductor device manufacturers, system integrators and medical device manufacturers.

Our products include components, modules, systems and instruments used across the lifecycle of wireless connectivity and communication development, deployment and testing. Our customers use these products in relation to commercial infrastructure development, the expansion and upgrade of distributed antenna systems, deployment of small cell technology, use of medical devices and private long term evolution ("LTE") networks. In addition, the Company's products are used in the development and testing of satellite communication systems, radar systems, semiconductor devices, automotive electronics and avionics.

The consolidated financial statements for the 2019 fiscal year include the accounts of Wireless Telecom Group, Inc., doing business as, and operating under the trade name Noise Com, Inc., and its wholly owned subsidiaries including Boonton Electronics Corporation, Microlab/FXR, Wireless Telecommunications Ltd. and CommAgility Limited. The corporate website address is www.wirelesstelecomgroup.com. Noise Com, Inc., Boonton Electronics Corporation, Microlab/FXR and CommAgility Limited Ltd. are hereinafter referred to as "Noisecom", "Boonton", "Microlab" and "CommAgility", respectively.

Market

Since the Company's incorporation in the State of New Jersey in 1985, it has been primarily engaged in supplying noise source components and instruments, electronic testing and measurement instruments, and radio frequency ("RF") passive components to customers. With the CommAgility acquisition in February of 2017 the Company expanded to include the delivery of signal processing modules and the delivery, implementation and configuration of LTE physical layer and stack software. Approximately 93% and 90% of the Company's consolidated revenues in fiscal years 2019 and 2018, respectively, were derived from commercial customers. The remaining consolidated revenues (approximately 7% and 10% in 2019 and 2018, respectively) were comprised of revenues from the United States government (particularly the armed forces) and prime defense contractors.

Products

Our Network Solutions segment is comprised of our **Microlab** business.

Microlab designs and manufactures a wide selection of RF components and integrated subsystems for signal conditioning and distribution in the wireless infrastructure markets as well as for use in medical devices. Microlab products are used in small cell deployments, distributed antenna systems, in-building wireless solutions and cellular base-stations. Microlab is a leader in low passive intermodulation ("PIM") radio frequency and microwave products for these purposes due to our quality, design consultation for specialized services, long history and expertise.

Microlab components possess unique capabilities in the area of broadband frequency coverage, minimal loss and low PIM. High performance components – such as power combiners, directional couplers, attenuators, terminators and filters – are developed for broadband applications to support commercial in-building wireless networks, public safety networks, rail and transportation deployments, corrosive salt/fog environment build-outs and global positioning system ("GPS") signal distribution.

Along with components and integrated subsystems, the Microlab portfolio also includes system performance monitoring and timing synchronization solutions. These products include a portfolio of GPS digital repeaters and splitters for cellular timing synchronization as well as a passive systems monitor for real-time diagnostics of an in-building distributed antenna system.

Our Test and Measurement segment is comprised of the **Boonton** and **Noisecom** brands and, subsequent to the closing of our acquisition of Holzworth, the **Holzworth** brand.

Boonton

Boonton is a leader in high performance RF and microwave test equipment for radar, avionics, electronic warfare, electromagnetic interference compatibility, and satellite and wireless communications applications due to our product quality and measurement speed and accuracy. Used across the semiconductor, military, aerospace, medical and commercial communications industries, Boonton products enable a wide range of radio frequency power measurements and signal analysis for radio frequency product design, production, maintenance and testing.

Boonton designs and produces electronic test and measurement equipment including power meters, power sensors, voltmeters, and audio and modulation analyzers. These products measure and analyze the performance of radio frequency and microwave systems used by the military and commercial sectors. Boonton products are also used to test terrestrial and satellite communications, radar and telemetry. Certain power meter products are designed for measuring signals based on wideband modulation formats, allowing a variety of measurements to be made, including maximum power, peak power, average power and minimum power.

Noisecom

Noisecom is a leader in radio frequency and microwave noise sources for signal jamming, system impairment, reference level comparison and calibration, receiver robustness testing, and jitter injection due to our product quality and product design flexibility. Noisecom designs and produces noise generation instruments, calibrated noise sources, noise modules and diodes. Noisecom noise products are used to provide wide band interference and test signals for sophisticated commercial communication and defense applications, and as a stable reference standard for advanced systems found in radar applications and satellite communications. Noise source products:

- simulate challenging signaling conditions in data and radio frequency transmission systems, such as jitter testing for high speed data lines used in modern computer architecture;
- send signals for noise measurement to allow wireless receivers and transmitters to be optimized;
- are used for jamming radio frequency signals, blocking or disturbing enemy radar and other communications and insulating and protecting friendly communications; and
- comprise components in radar systems as part of built-in test equipment to continuously monitor the radar receiver and in-satellite communications where the use of back-up receivers are becoming more common.

Electronic noise generation devices from Noisecom come in a variety of product types including noise diodes, built-in-test modules (“BITE”), calibrated noise sources, jitter sources, cryogenic noise standards and programmable instruments. Calibrated noise sources are available from audio to millimeter wavelengths in coaxial or waveguide modules. Programmable instruments are highly configurable and able to generate precise carrier-to-noise, signal-to-noise and broadband white noise levels. Noisecom products are customizable to meet the unique needs of challenging applications and can be designed for high power, high crest factor, and specific filtering.

Holzworth

Holzworth designs and manufactures specialty phased noise analyzers and signal generators used by government labs, the semiconductor industry, and network equipment providers, among others, in research and automated test environments. Holzworth signal generators are optimized for ultra-low phase noise performance, spectral purity and fast switching speeds and their phase noise analyzers are of the same innovative design philosophy, optimized for measurement speed, z540 traceable accuracy and high reliability while measuring to noise floors at the theoretical limit.

Our Embedded Solutions segment consists of our subsidiary **CommAgility**.

CommAgility develops the software which enables private network deployments including the LTE physical layer and stack software, for 4G and emerging 5G mobile network and related applications. CommAgility also develops embedded signal processing and radio frequency modules which enable 4G and 5G mobile network solutions and related applications. Combining the latest digital signal processing (“DSP”), field programmable gate array (“FPGA”) and radio frequency technologies with advanced, industry-leading software, CommAgility provides compact, powerful and reliable products for integration into high performance test equipment, specialized radio and intelligence systems, satellite systems and R&D demonstrators.

CommAgility engineers work closely with customers to provide hardware and software solutions for the most demanding real-time signal processing, test and control challenges in wireless baseband, semiconductor processing, medical imaging, radar and sonar applications. Additionally, CommAgility licenses, implements and customizes LTE physical layer and stack software for private LTE networks supporting satellite communications, the military and aerospace industries, offering our customers unique implementation capabilities built on the LTE standard.

Marketing and Sales

The Company's products are sold globally through our in-house sales force, industry-specific manufacturers' representatives and through a network of authorized distributors. The Company promotes the sale of its products through its website, product literature, published articles, technical conference presentations, direct mailings, trade advertisements and trade show exhibitions.

The Company's relationships with its manufacturers' representatives and distributors are governed by written contracts that either run for one-year renewable periods terminable by either party on 30 to 60 days prior notice or have indefinite lives terminable by either party on 30 to 60 days prior notice. The contracts generally provide for territorial and product representation.

Customers

The Company currently sells the majority of its products to telecommunications service providers, systems integrators, neutral host operators, distributors, large defense contractors, global technology and services companies, U.S. and foreign governments, and medical device manufacturers.

For the years ended December 31, 2019 and 2018 one customer, Viavi Solutions, accounted for 24.8% and 22.0% of total consolidated revenues, respectively.

Competition

We compete against many companies which utilize similar technology, some of which are larger and have substantially greater resources and expertise in financial, technical and marketing areas than us. Some of these companies include Keysight Technologies, Inc., Rohde & Schwarz GmbH & Co. KG, Anritsu Corporation, Kathrein, Commscope, Qualcomm and Azcom. We also compete against smaller offshore vendors with significantly lower costs and expenses than us, such as Sym Technology, Inc., Innowave RF and Wireless Supply.

The Company believes its competitive strengths include:

- long-standing relationships with a core group of diverse customers in the wireless, telecommunication, satellite, military, aerospace, semiconductor and medical industries
- agility in providing highly customized and configured solutions to the customer's technical specifications
- a long tradition of developing highly engineered wireless solutions through our strong design capabilities and technology know-how
- long-standing, well-established sales channels and relationships which allow us to bring new solutions to market quickly
- diversification across multiple customer segments, providing solutions to enable development, testing and deployment
- being an approved vendor at all four of the major U.S. carriers with hundreds of approved Network Solutions products
- an embedded base of products and instruments in our Test & Measurement segment which leads to recurring purchases of our products
- extensive knowhow and IP in the Embedded Solutions segment related to 3rd Generation Partnership Project ("3GPP") 4G and 5G wireless standards which enable us to address complex and customized requirements for specialized networks

Backlog

The Company's consolidated backlog of firm orders to be shipped in the next twelve months was approximately $3.8 million at December 31, 2019, compared to approximately $8.2 million at December 31, 2018. It is anticipated that the majority of the backlog orders at December 31, 2019 will be filled during the current year. The stated backlog is not necessarily indicative of Company revenues for any future period nor is a backlog any assurance that the Company will realize a profit from the orders.

Inventory, Supplies and Manufacturing

CommAgility develops the software which enables private network deployments including the LTE physical layer and stack software, for 4G and emerging 5G mobile network and related applications. CommAgility also develops embedded signal processing and radio frequency modules which enable 4G and 5G mobile network solutions and related applications. Combining the latest digital signal processing ("DSP"), field programmable gate array ("FPGA") and radio frequency technologies with advanced, industry-leading software, CommAgility provides compact, powerful and reliable products for integration into high performance test equipment, specialized radio and intelligence systems, satellite systems and R&D demonstrators.

The Company is not party to any long term contracts regarding the deliveries of its supplies and components. It generally purchases such items pursuant to written purchase orders of both the individual and blanket variety. Blanket purchase orders usually cover the purchase of a larger amount of items at fixed prices for delivery and payment on specific dates.

For Boonton and Noisecom products, the Company develops, designs, manufactures, assembles, calibrates and tests the products at our facility in Parsippany, New Jersey. Testing of Boonton and Noisecom products is generally accomplished at the end of the manufacturing process and is performed in-house, as are all quality control processes.

Approximately 48% of Microlab's revenues are traced to products that are sourced from offshore vendors. Certain of Microlab's products that were sourced from offshore vendors were subject to tariffs throughout the entirety of fiscal 2019, and, effective September 1, 2019, all of Microlab products that come from offshore suppliers are subject to tariffs. The impact of tariffs has decreased our consolidated gross profit margin by less than 1%. The remainder of Microlab products are designed and manufactured by the Company in Parsippany, New Jersey. All Microlab products are tested by the Company in Parsippany, New Jersey.

CommAgility hardware products are built by contract manufacturers to CommAgility designs, and tested either by the contract manufacturer or by CommAgility. Software products are licensed to customers through a system that allows the customer to download the software once access has been granted.

Warranty and Service

The Company typically provides one to three year warranties on all of its products covering both parts and labor. The Company, at its option, repairs or replaces products that are defective during the warranty period if the proper preventive maintenance procedures have been followed by its customers.

In cases of defective products the customer typically returns them to the Company's facility. The Company's service personnel replace or repair the defective items and ship them back to the customer. Generally, all servicing is done at the Company's facility, and the Company charges its customers a fee for those service items that are not covered by warranty. The Company typically does not offer their customers any formal written service contracts.

Product Liability Coverage

The testing of electronic communications equipment and the accurate transmission of information entail a risk of product liability to the Company. Product liability claims could be asserted against the Company by end-users of any of the Company's products. The Company maintains product liability insurance coverage. No claims have been asserted for product liability due to a defective or malfunctioning device in the past five years.

Intellectual Property

We believe that our intellectual property, including its methodologies, is critical to our success and competitive position. We rely on a combination of U.S. and foreign patents, copyrights, trademarks and trade secrets, as well as confidentiality agreements to establish and protect our proprietary rights. All employees are subject to the Company's policies to ensure that all of the Company's intellectual property and business information are maintained in confidence. Key employees have signed non-disclosure and non-competition agreements.

Regulation

Environmental

The Company’s operations are subject to various federal, state and local environmental laws, ordinances and regulations that limit discharges into the environment, establish standards for the handling, generation, use, emission, release, discharge, treatment, storage and disposal of, or exposure to, hazardous materials, substances and waste, and require cleanup of contaminated soil and groundwater.

At this time, the Company believes that it is in material compliance with all environmental laws, does not anticipate any material expenditure to meet current or pending environmental requirements, and generally believes that its processes and products do not present any unusual environmental concerns. The Company is unaware of any existing, pending or threatened contingent environmental liability that may have a material adverse effect on its ongoing business operations.

Workplace Safety

The Company’s operations are also governed by laws and regulations relating to workplace safety and worker health. The Company believes it is in material compliance with these laws and regulations and does not believe that future compliance with such laws and regulations will have a material adverse effect on its results of operations or financial condition.

ITAR and Export Controls

The Company is subject to International Traffic in Arms Regulation, or ITAR. ITAR requires export licenses from the U.S. Department of State for products shipped outside the U.S. that have military or strategic applications. Because some of the Company’s products could have military or strategic applications, it must ensure its compliance with ITAR.

In addition, the Company is subject to the Export Administration Regulations, or EAR, which regulates the export of certain “dual use” items and technologies and, in some instances, requires a license from the U.S. Department of Commerce in connection with sales of the Company’s products.

The Company believes it is in material compliance with all such export regulations.

FAR and DFARS

Certain of the Company’s contracts with the U.S. Government are subject to Federal Acquisition Regulations (“FAR”) regarding government procurement. Further, certain of the Company’s contracts are subject to the IT security requirements of Defense Federal Acquisition Regulation Supplement (“DFARS”) for controlled unclassified information.

The Company believes it is in material compliance with applicable requirements of FAR and DFARS.

Employees

As of February 29, 2020, the Company has 154 full time employees, including Holzworth employees. The Company is not subject to collective bargaining agreements in the United States or internationally and considers its relationship with its employees to be good.

Investor Information

The Company is subject to the disclosure requirements of the Securities Exchange Act of 1934, as amended (“Exchange Act”). Therefore, the Company files periodic reports, proxy statements and other information with the Securities and Exchange Commission (“SEC”). The SEC maintains an Internet site (http://www.sec.gov) that contains reports, proxy and information statements and other information regarding issuers that file electronically.

You can access financial and other information, including copies of our recent SEC filings, at the Company’s Investor Relations page on its website. The address of the website is www.wirelesstelecomgroup.com. The Company makes available, free of charge, copies of its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after filing such material electronically or otherwise furnishing it to the SEC.

Item 1A. **Risk Factors**

Our business is dependent on capital spending on data and communication networks by customers or end users of our products, and reductions in such capital spending could adversely affect our business.

Our performance is dependent on customers' or end users' capital spending for constructing, rebuilding, maintaining or upgrading data and communication networks, which can be volatile or hard to forecast. Capital spending in the communications industry is cyclical and can be curtailed or deferred on short notice. A variety of factors affect the amount of capital spending, and therefore, our revenues and profits, including:

- competing technologies;
- timing and adoption of global rollout of new technologies, including 4G/LTE/5G;
- customer specific financial or market conditions;
- governmental budget levels and regulation;
- demand for network services; and
- acceptance of new services offered by our customers.

Our customers or the end users of our products may not purchase new equipment at levels we have seen in the past or expect in the future. Accordingly, we may not be able to maintain or increase our revenue in the future, and our business, financial condition, results of operations and cash flows could be materially adversely affected.

We depend on the deployment of 4G LTE and 5G NR private networks and related services to grow our business, and our business may be harmed if our customers are unsuccessful in the deployment of 4G LTE and 5G NR private networks or if they deploy technologies that are not supported by our solutions.

We depend on the deployment of 4G LTE and 5G NR wireless private networks which are supported by our Embedded Solutions software licenses and services. Deployment of private networks in support of industrial internet of things ("IOT") networks, satellite communications, transportation networks and air to ground networks requires significant capital expenditure by customers. If new deployments of 4G LTE or 5G NR private networks are delayed because of a lack of capital or other issues, or if we are unsuccessful in winning new projects for deployment of 4G LTE and 5G NR private networks, our financial results could be adversely affected.

We depend on a limited number of customers for a significant portion of our revenues. The loss of, or a significant decrease in business from any of these customers could seriously harm our financial condition and results of operations.

We derived a significant portion of our revenues from a limited number of customers in 2019. On a segment basis, client concentration may be of even greater significance. In 2019 one customer accounted for 90% of Embedded Solutions revenues. Two customers accounted for approximately 71% and 18% of the Embedded Solutions segment revenues for 2018. In addition, in our Network Solutions segment, we have one customer representing approximately 17% and 13% of the 2019 and 2018 revenues, respectively, for that segment. The loss of, or a significant decrease in, business from one or more of our more significant customers could seriously harm our financial condition and results of operations. We expect to continue to depend upon some of these larger customers for a significant percentage of our revenues.

Our business operations and financial performance may be affected by the recent coronavirus outbreak in China.

The recent outbreak of coronavirus in China is spreading globally and is expected to adversely affect the economic conditions throughout the world. The outbreak has slowed the economic growth in China. With the spread of the Coronavirus to the United States and other countries, it is unclear how economic activity and workflows might be impacted on a worldwide basis. Many employers in the United States are requiring their employees to work from home or not come into their office. If the outbreak continues and conditions worsen, we may experience a disruption in our supply chain as well as a decline in sales activities and customer orders. The impact of the Coronavirus on our operations is uncertain at this time. Given the rapidly changing situation related to this pandemic, we believe it could have a material adverse effect on our business, financial conditions and results of operations.

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

We currently have a credit facility with Bank of America providing an asset-based revolver and a term loan (see Management Discussion and Analysis – Liquidity and Capital Resources below). To fund the cash portion of the purchase price of the Holzworth acquisition, on February 7, 2020, we entered into a term loan facility with Muzinich BDC which provides for a term loan in the amount of $8.4 million.

Our degree of leverage could have consequences, including:

- making it more difficult for us to make payment on our indebtedness;
- increasing our vulnerability to general economic and industry conditions;
- requiring a substantial portion of cash flow from operations to be dedicated to the payment of principal and interest on our indebtedness, thereby reducing our ability to use our cash flow to fund our operations, capital expenditures, research and development and future business opportunities;
- exposing us to the risk of increased interest rates;
- limiting our ability to make strategic acquisitions and investments;
- limiting our ability to refinance our indebtedness as it becomes due; and
- limiting our ability to adjust quickly or at all to changing market conditions and placing us at a competitive disadvantage compared to our competitors who are less highly leveraged.

Our ability to continue to fund our obligations and to reduce debt may be affected by general economic, financial market, competitive, legislative and regulatory factors, among other things. An inability to fund our debt requirements or reduce debt could have a material adverse effect on our business, operating results, cash flows and financial condition.

Restrictive covenants in the agreements governing our credit facility could restrict our ability to pursue business strategies.

The agreements governing our term loan and credit facility limit our ability, among other things, to incur additional secured indebtedness, incur liens, pay dividends, enter into transactions with our affiliates, and sell assets. In addition, our credit facility contains restrictive covenants that limit our ability to engage in activities that might be in our long term best interest, such as, subject to permitted exceptions, making capital expenditures in excess of certain thresholds, making investments and acquisitions, and extending loans and other advances to affiliates. Furthermore, the term loan facility contains specific financial covenants including a quarterly leverage test, fixed charge coverage test and a liquidity requirement for our CommAgility business. The credit facility with Bank of America contains one financial covenant which is a fixed charge coverage test. A default of a covenant in our Muzinich term loan facility would trigger a cross default in our Bank of America credit facility and vice versa.

Our failure to comply with financial and other restrictive covenants could result in an event of default and cross default, which if not cured or waived, could result in the lenders requiring immediate payment of all outstanding borrowings or foreclosing on collateral pledged to them to secure the indebtedness.

The cyclicality of our end-user markets could harm our financial results.

Many of the end markets we serve, including but not limited to the commercial wireless market, have historically been cyclical and have experienced periodic downturns. The factors leading to and the severity and length of a downturn are very difficult to predict and there can be no assurance that we will appropriately anticipate changes in the underlying end markets we serve or that any increased levels of business activity will continue as a trend into the future. If we fail to anticipate changes in the end markets we serve, our business, results of operations and financial condition could be materially adversely affected. We are subject to fluctuations in technology spending by existing and potential customers.

Our industry is highly competitive and if we are not able to successfully compete, we could lose market share and our revenues could decline.

We operate in industries characterized by aggressive competition, rapid technological change, evolving technology standards and short product life cycles. Current and prospective customers for our products evaluate our capabilities against the merits of our direct competitors. We compete primarily on the basis of technology and performance.

We also compete on price. That competition comes from smaller offshore vendors with significantly lower costs and expenses as well as larger companies which have substantially greater resources and expertise in financial, technical and marketing areas than we have. The emergence of smaller off shore vendors has created a highly competitive pricing environment specifically for our Network Solutions segment. Our competitors may introduce products that are competitively priced, have increased performance or functionality or incorporate technological advances that we have not yet developed or implemented.

To remain competitive, we must continue to develop, market and sell new and enhanced products at competitive prices, which will require significant research and development expenditures. If we do not develop new and enhanced products or if we are not able to invest adequately in our research and development activities, our business, financial condition and results of operations could be negatively impacted.

Many of our competitors are substantially larger than we are, and have greater financial, technical, marketing and other resources than we have. Many of these large enterprises are in a better position to withstand any significant reduction in capital spending by customers in our markets. They often have broader product lines and market focus, and may not be as susceptible to downturns in a single market. These competitors may also be able to bundle their products together to meet the needs of a particular customer, and may be capable of delivering more complete solutions than we are able to provide. To the extent large enterprises that currently do not compete directly with us choose to enter our markets by acquisition or otherwise, competition would likely intensify.

We are exposed to risks associated with acquisitions and investments which could cause us to incur unanticipated costs and liabilities and harm our business and results of operations.

On February 7, 2020 we acquired Holzworth Instrumentation, Inc., a company based in Denver, Colorado. Additionally, in the future we may make acquisitions of, or significant investments in, businesses with complementary products, services and/or technologies. The Holzworth acquisition and future acquisitions and investments involve numerous risks, including, but not limited to:

- difficulties and increased costs in connection with integration of the personnel, operations, technologies and products of acquired businesses;
- diversion of management’s attention from other operational matters;
- the potential loss of key employees of acquired businesses;
- lack of synergy, or the inability to realize expected synergies, resulting from the acquisition;
- implementation or remediation of controls, procedures and policies of the acquired company;
- failure to commercialize purchased technology;
- liability for activities of the acquired company prior to the acquisition, including violations of law, commercial disputes, escheat and tax and other known and unknown liabilities; and
- the impairment of acquired intangible assets and goodwill that could result in significant charges to operating results in future periods.

If we are unable to address these difficulties and challenges or other problems encountered in connection any future acquisition or investment, we might not realize the anticipated benefits of that acquisition or investment and we could incur unanticipated costs, liabilities or otherwise suffer harm to our business generally. The difficulties and challenges of successful integration of any acquired company are increased when the integration involves companies with operations or material vendors outside the United States.

To the extent that we pay the consideration for any future acquisitions or investments in cash or any potential cash earn outs, it would reduce the amount of cash available to us for other purposes. Such payments also may increase our cash flow and liquidity risk and could result in increased borrowings under our Credit Facility. See the Risk Factor titled “**Our degree of leverage could adversely affect our ability to raise additional capital to fund our operations, limit our ability to react to changes in the economy or our industry, expose us to interest rate risk on our variable rate debt and prevent us from meeting obligations on our indebtedness.**” Future acquisitions or investments could also result in dilutive issuances of our equity securities or the incurrence of debt, contingent liabilities, amortization expenses or impairment charges against goodwill or intangible assets on our balance sheet, any of which could have a material adverse effect on our business, results of operations and financial condition.

Our future success depends on our ability to anticipate and to adapt to technological changes and to develop, implement and market product innovations.

Many of our markets are characterized by advances in information processing and communications capabilities that require increased transmission speeds and greater bandwidth. These advances require ongoing improvements in the capabilities of our products. However, we may not be successful in our ongoing improvement efforts if, among other things, our products:

- are not cost effective;
- are not brought to market in a timely manner;
- are not in accordance with evolving industry standards; or
- fail to achieve market acceptance or meet customer requirements.

There are various competitive wireless technologies that could be a substitute for the products we sell. The failure to successfully introduce new or enhanced products on a timely and cost-competitive basis or the inability to continue to market existing products on a cost-competitive basis could have a material adverse effect on our results of operations and financial condition. In addition, revenues from new products may replace revenues from some of our existing products, mitigating the benefits of new product introductions and possibly resulting in excess levels of inventory.

Furthermore, we must make long-term investments and commit significant resources before knowing whether our investments will eventually result in products that the market will accept. We must accurately forecast volumes, mix of products and configurations that meet customer requirements, and we may not succeed. If we do not succeed, we may be left with inventories of obsolete products or we may not have enough of some products available to meet customer demand, which could lead to reduced revenues and higher expenses.

Our revenues are dependent in part on commercial upgrades of 4G and 5G wireless communications equipment, products and services. Our business may be harmed, and our investments in our technologies may not provide us an adequate return if:

- LTE, a wireless standard, is not widely deployed or commercial deployment is delayed;
- wireless operators delay moving customers to 4G or 5G devices;
- wireless operators delay 4G or 5G deployments, expansions or upgrades;
- government regulators delay the reallocation of spectrum to allow wireless operators to upgrade to 4G or 5G, which will restrict the expansion of 4G or 5G wireless connectivity;
- wireless operators are unable to drive improvements in 4G or 5G network performance and/or capacity;
- wireless operators and other industries using these technologies deploy other technologies; or
- wireless operators choose to spend their capital on their core network or limit their expenditures on radio access network (RAN).

Our business is dependent on our ability to increase our share of components sold and to continue to drive the adoption of our products and services into LTE, 4G and 5G wireless networks. If commercial deployment of our technologies, and upgrade of subscribers to 4G or 5G wireless communications equipment, products and services using our technologies do not continue or are delayed, our revenues could be negatively impacted, and our business could suffer.

Further, if we do not have competitively priced, market accepted products available to meet the wireless operators planned roll-out of 5G wireless communications systems, we may miss a significant opportunity and our business, financial condition and results of operations could be materially and adversely impacted.

Our future research and development projects might not be successful.

The successful development of telecommunications products can be affected by many factors. Products that appear to be promising at their early phases of research and development may fail to be commercialized for various reasons, including the failure to obtain the necessary regulatory approvals. There is no assurance that any of our future research and development projects will be successful or completed within the anticipated time frame or budget or that we will receive the necessary approvals from relevant authorities, customers, or prospective customers, for the production of these newly developed products, or that these newly developed products will achieve commercial success. Even if such products can be successfully commercialized, they may not achieve the level of market acceptance that we expect.

Dependence on contract manufacturing and outsourcing other portions of our supply chain might adversely affect our ability to bring products to market and could damage our reputation.

As part of our efforts to streamline operations and to minimize costs, we outsource aspects of our manufacturing processes and other functions and continue to evaluate additional outsourcing. If our contract manufacturers or other outsourcers fail to perform their obligations in a timely manner or at satisfactory quality levels, our ability to bring products to market and our reputation could suffer. For example, during a market upturn, our contract manufacturers might be unable to meet our demand requirements, which could preclude us from fulfilling our customers' orders on a timely basis. The ability of these manufacturers to perform is largely outside of our control. Additionally, changing or replacing our contract manufacturers or other outsourcers could cause disruptions or delays.

If our products do not perform as promised, we could experience increased costs, lower margins and harm to our reputation.

The failure of our products to perform as promised could result in increased costs, lower margins and harm to our reputation. We may not be able to anticipate all of the possible performance or reliability problems that could arise with our existing or new products, which could result in significant product liability or warranty claims. In addition, any defects found in our products could result in a loss of revenues or market share, failure to achieve market acceptance, injury to our reputation, indemnification claims, litigation, increased insurance costs and increased service costs, any of which could discourage customers from purchasing our products and materially harm our business.

Uncertainty over global tariffs, or the financial impact of tariffs, may negatively affect our results.

Recent changes in U.S. domestic and global tariff frameworks have increased our costs of producing goods and resulted in additional risks to our supply chain. Additional tariff changes are possible. We are engaged in efforts to mitigate tariff increases, but there is no assurance we will be successful. Further, uncertainties about future tariff changes could result in mitigation actions that prove to be detrimental to our business.

Shortages or delays of supplies for component parts could adversely affect our operating results until alternate sources can be developed.

Our operations are dependent on the ability of suppliers to deliver quality components, devices and subassemblies in time to meet critical manufacturing and distribution schedules. If we experience any constrained supply of component parts, such constraints, if persistent, could adversely affect operating results until alternate sourcing can be developed. There could be an increased risk of supplier constraints in periods where we are increasing production volume to meet customer demands. Volatility in the prices of these component parts, an inability to secure enough components at reasonable prices to build new products in a timely manner in the quantities and configurations demanded or, conversely, a temporary oversupply of these parts, could adversely affect our future operating results.

The testing and use of electronic communications equipment and the accurate transmission of information entail a risk of product liability claims being asserted by customers and third parties.

Claims may be asserted against us by end-users of any of our products for liability due to a defective or malfunctioning device made by us, and we could be subject to corresponding litigation should one or more of our products fail to perform or meet certain minimum requirements. Such a claim and corresponding litigation could result in substantial costs, diversion of resources and management attention, termination of customer contracts and harm to our reputation.

We are subject to laws and regulations governing government contracts, and failure to address and comply with these laws and regulations could harm our business by leading to a reduction in revenue associated with these customers and subjecting us to civil and criminal penalties.

We have agreements relating to the sale of our products to U.S. government entities and, as a result, we are subject to various statutes and regulations that apply to companies doing business with the U.S. government. The laws governing government contracts differ from the laws governing private contracts. For example, many government contracts contain pricing terms and conditions that are not applicable to private contracts. We are also subject to investigation for compliance with the regulations governing government contracts. A failure to comply with these regulations might result in suspension of these contracts, or civil and criminal penalties.

We could be subject to significant costs related to environmental contamination from past operations, and environmental contamination caused by ongoing operations could subject us to substantial liabilities in the future.

The Company’s operations are subject to various federal, state, local, and foreign environmental laws, ordinances and regulations that limit discharges into the environment, establish standards for the handling, generation, use, emission, release, discharge, treatment, storage and disposal of, or exposure to, hazardous materials, substances and waste, and require cleanup of contaminated soil and groundwater.

Certain of our products and our business are subject to ITAR, Export Administration Regulations, Foreign Corrupt Practices Act and other U.S. and foreign government laws, regulations, policies and practices, and our failure to comply with such regulations could adversely affect our business, results of operations and financial condition.

Our international revenues, for which we also use foreign representatives and consultants, are subject to U.S. laws, regulations and policies, including the ITAR and the U.S. Foreign Corrupt Practices Act, or the FCPA, and other export laws and regulations, as well as foreign government laws, regulations and procurement policies and practices which may differ from the U.S. government regulations in this regard.

Compliance with the directives of the U.S. Department of State may result in substantial legal and other expenses and the diversion of management time. In the event that a determination is made that we or any entity we have acquired has violated the ITAR with respect to any matters, we may be subject to substantial monetary penalties that we are unable to quantify at this time, and/or suspension or revocation of our export privileges and criminal sanctions, which may have a material adverse effect on our business, results of operations and financial condition.

We can give no assurance that under either the ITAR or the EAR we will continue to be successful in obtaining the necessary licenses and authorizations or that certain revenues will not be prevented or delayed due to compliance issues related to the ITAR or the EAR.

We are also subject to, and must comply with, the FCPA and similar world-wide anti-corruption laws, including the U.K. Bribery Act of 2010. These acts generally prohibit both us and our third party intermediaries from making improper payments to foreign officials for the purpose of acquiring or retaining business or otherwise obtaining favorable treatment. We are required as well to maintain adequate record-keeping and internal accounting practices to fully and accurately reflect our transactions. We operate in many parts of the world that have experienced government corruption. In certain circumstances, the FCPA and our programs and policies may conflict with local customs and practices. If we or any of our local intermediaries have failed to comply with the requirements of the FCPA, governmental authorities in the United States could seek to impose severe criminal and civil penalties. The assertion of violations of the FCPA or other anti-corruption laws could disrupt our business and have a material adverse effect on our results of operations and financial condition.

We are subject to various other governmental regulations, compliance with which could cause us to incur significant expenses, and if we fail to maintain satisfactory compliance with certain regulations, we could be forced to recall products and cease their distribution, and we could be subject to civil or criminal penalties.

Our business is subject to various other significant international, federal, state and local regulations, including but not limited to health and safety, packaging, product content and labor regulations. These regulations are complex, change frequently and have tended to become more stringent over time. We may be required to incur significant expenses to comply with these regulations or to remedy violations of these regulations. Any failure by us to comply with applicable government regulations could also result in cessation of our operations or portions of our operations, product recalls or impositions of fines and restrictions on our ability to carry on or expand our operations.

The loss of key personnel could adversely affect our ability to remain competitive; our development of new and upgraded products could be adversely impacted by our inability to hire or retain personnel with appropriate technical abilities.

We believe that the continued service of our executive officers will be important to our future growth and competitiveness. However, other than the employment agreement we entered into with Mr. Whelan, Chief Executive Officer, we currently do not have any other employment agreements with our executive officers. We cannot provide assurance that any named executive officer will remain employed by us. The Muzinich term loan facility includes a key executive retention provision. Specifically, the cessation of service of any two of Tim Whelan, Michael Kandell or Daniel Monopoli as Chief Executive Officer, Chief Financial Officer or Chief Technology Officer, respectively, as long as the Company's consolidated leverage ratio is greater than 1.0 to 1.0 would constitute an event of default if those persons were not replaced with persons acceptable to Muzinich within 60 days.

Additionally, the design and manufacture of our products require substantial technical capabilities in many disparate disciplines, from engineering, mechanics and computer science to electronics and mathematics. We believe that the continued employment of key members of our technical and sales staffs will be important to us but, as with our executive officers, we cannot assure you that they will remain employed by us.

Furthermore, our ability to research and develop new technologies and products, or upgraded versions of existing products, will depend, in part, on our ability to hire personnel with knowledge and skills that our current personnel do not have. If we are unable to hire or retain such qualified personnel, our revenues could be negatively impacted, and our business could suffer.

We rely on manufacturers representatives to sell our products to key large accounts and the loss of a key manufacturers representative could have a material impact on our revenues

Our products are sold through a small in-house direct sales force as well as a network of industry specific manufacturers' representatives that have established relationships with our largest customers. Our arrangements with our manufacturers' representatives generally can be canceled by either party with advance written notice. The loss of a manufacturers representative could result in a material decline in revenues.

Third parties could claim that we are infringing on their intellectual property rights which could result in substantial costs, diversion of significant managerial resources and significant harm to our reputation.

The industries in which our company operates are characterized by the existence of a large number of patents and frequent litigation based on allegations of patent infringement. From time to time, third parties may assert patent, copyright, trademark and other intellectual property rights to technologies in various jurisdictions that are important to our business. Defending claims, including claims without merit, requires allocation of resources, including personnel and capital, which could adversely impact our results of operations. A successful claim of infringement against us could result in our being required to pay significant damages, enter into costly license agreements, or stop the sale of certain products, which could adversely affect our net revenues, gross margins and expenses and harm our future prospects.

We use specialized technologies and know-how to design, develop and manufacture our products. Our inability to protect our intellectual property could hurt our competitive position, harm our reputation and adversely affect our results of operations.

We believe that our intellectual property, including its methodologies, is critical to our success and competitive position. We rely on a combination of U.S. and foreign patent, copyright, trademark and trade secret laws, as well as confidentiality agreements to establish and protect our proprietary rights. If we are unable to protect our intellectual property against unauthorized use by third parties, our reputation among existing and potential customers could be damaged and our competitive position adversely affected.

Attempts may be made to copy aspects of our products or to obtain and use information that we regard as proprietary. Accordingly, we may not be able to prevent misappropriation of our technology or deter others from developing similar technology. Our strategies to deter misappropriation could be undermined if:

- the proprietary nature or protection of our methodologies is not recognized in the United States or foreign countries;
- third parties misappropriate our proprietary methodologies and such misappropriation is not detected; and
- competitors create applications similar to ours but which do not technically infringe on our legally protected rights.

If these risks materialize, we could be required to spend significant amounts to defend our rights and to divert critical managerial resources. In addition, our proprietary methodologies could decline in value or our rights to them could become unenforceable. If any of the foregoing were to occur, our business could be materially adversely affected.

Our business and operations could suffer in the event of security breaches.

Attempts by others to gain unauthorized access to information technology systems are becoming more sophisticated and are sometimes successful. These attempts, which might be related to industrial or other espionage, include covertly introducing malware to our computers and networks and impersonating authorized users, among others. We seek to detect and investigate all security incidents and to prevent their recurrence, but in some cases, we might be unaware of an incident or its magnitude and effects. The theft, unauthorized use or publication of our intellectual property and/or confidential business information could harm our competitive position, reduce the value of our investment in research and development and other strategic initiatives or otherwise adversely affect our business. To the extent that any security breach results in inappropriate disclosure of our customers' or licensees' confidential information, we may incur liability as a result. In addition, we might be required to devote significant additional resources to the security of our information technology systems.

We rely on our information technology systems to manage numerous aspects of our business and a disruption of these systems could adversely affect our business.

Our information technology, or IT, systems are an integral part of our business. We depend on our IT systems for scheduling, sales order entry, purchasing, materials management, accounting, and production functions. Our IT systems also allow us to ship products to our customers on a timely basis, maintain cost-effective operations and provide a high level of customer service. Some of our systems are not fully redundant, and our disaster recovery planning does not account for all eventualities. A serious disruption to our IT systems could significantly limit our ability to manage and operate our business efficiently, which in turn could have a material adverse effect on our business, results of operations and financial condition.

Environmental and other disasters, such as flooding, large earthquakes, hurricanes, volcanic eruptions or nuclear or other disasters, or a combination thereof, may negatively impact our business.

Although we manufacture our products in New Jersey, we both source and ship our products globally. Environmental and other disasters could cause disruption to our supply chain or impede our ability to ship product to certain regions of the world. There can be no assurance that environmental and/or other such natural disasters will not have an adverse impact on our business in the future.

Our operating results may suffer because of our exposure to foreign currency exchange rate fluctuations.

Substantially all of our sales contracts with our U.S. and international based customers provide for payment in U.S. dollars. A strengthening of the U.S. dollar relative to other foreign currencies could increase the effective cost of our products to our international customers as their functional currency is typically not the U.S. dollar. This could have a potential adverse effect on our ability to increase or maintain average selling prices of our products to our foreign-based customers.

Our future revenue and expenses may be subject to volatility due to exchange rate fluctuations that could result in foreign exchange gains and losses associated with foreign currency transactions and the translation of assets and liabilities denominated in foreign currencies.

The success of our ability to grow revenues and develop relationships in Europe and Asia may be limited by risks related to conducting business in European and Asian markets.

Part of our strategy is to increase revenues and build our relationships in European and Asian markets. Risks inherent in marketing, selling and developing relationships in European and Asian markets include those associated with:

- economic conditions in European and Asian markets, including the impact of recessions in European and Asian economies and fluctuations in the relative values of the U.S. dollar, the Euro and Asian currencies;
- taxes and fees imposed by European and Asian governments that may increase the cost of products and services;
- greater difficulty in accounts receivable collection and longer collection periods;
- seasonal reductions in business activities in some parts of the world;
- laws and regulations imposed by individual countries and by the European Union, particularly with respect to intellectual property, license requirements and environmental requirements; and
- political and economic instability, terrorism and war.

In addition, European and Asian intellectual property laws are different than and might not protect our proprietary rights to the same extent as do U.S. intellectual property laws, and we will have to ensure that our intellectual property is adequately protected in foreign jurisdictions and in the United States. If we do not adequately protect our intellectual property rights, competitors could use our proprietary technologies in non-protected jurisdictions and put us at a competitive disadvantage.

The uncertainty surrounding the implementation and effect of Brexit may cause increased economic volatility, affecting our operations and business.

In June 2016, a majority of voters in the United Kingdom (“U.K.”) elected to withdraw from the European Union (E.U.) in a national referendum (also referred to as “Brexit”). CommAgility is located in the U.K. The UK withdrew from the EU pursuant to Brexit on January 31, 2020, subject to a transition period that is set to end on December 31, 2020. During the transition period, the British government will continue to negotiate the terms of the U.K.’s future relationship with the EU. The outcome of these negotiations is uncertain and we do not know to what extent Brexit will ultimately impact the business and regulatory environment in the U.K., the rest of the E.U. or other countries.

The effects of Brexit will depend on any agreements the U.K. makes to retain access to E.U. markets. The measures could potentially disrupt the markets we serve and may cause us to lose customers, suppliers and employees. Additionally, disruptions and uncertainty caused by Brexit may cause our customers to closely monitor their costs and reduce their spending budget on our products and services. Brexit may also lead to legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which E.U. laws to replace or replicate. Any of these effects of Brexit, among others, could adversely affect our business, financial condition or future results.

Our results of operations could be affected by changes in tax-related matters.

A number of factors could cause our tax rate to increase, including a change in the jurisdictions in which our profits are earned and taxed; a change in the mix of profits from those jurisdictions; changes in available tax credits; changes in applicable tax rates; changes in accounting principles. We have deferred tax assets on our balance sheet. Changes in applicable tax laws and regulations or in our business performance could affect our ability to realize those deferred tax assets, which could also affect our results of operations.

Our stock price is volatile and the trading volume in our common stock is less than that of other larger companies in the wireless and advanced communications industries.

The market price of our common stock has experienced significant volatility and may continue to be subject to rapid swings in the future. From January 1, 2015 to February 21, 2020, the trading prices of our stock have ranged from $1.23 to $3.21 per share. There are several factors which could affect the price of our common stock unrelated to our financial performance, including announcements of technological innovations for new commercial products by us or our competitors, developments concerning propriety rights, new or revised governmental regulation or general conditions in the market or for our products, and the entrance of additional competitors into our markets.

Although our common stock is listed for trading on the NYSE American, the trading volume in our common stock is less than that of other, larger companies in the wireless and advanced communications industries. Traditionally, the trading volume of our common stock has been limited. For example, for the 90 trading days ending on February 21, 2020, the average daily trading volume was approximately 13,000 shares per day and ranged from between 300 shares per day and approximately 106,000 shares per day. Furthermore, we only have 21,647,571 shares of common stock outstanding as of the date of this report. A public trading market having the desired characteristics of depth, liquidity and orderliness depends on the presence in the marketplace of willing buyers and sellers of our common stock at any given time. Because of our limited trading volume, holders of our common stock may not be able to sell quickly any significant number of shares, and any attempted sales of a large number of our shares will likely have a material adverse impact on the price of our common stock.

New Jersey corporate law may delay or prevent a transaction that stockholders would view as favorable.

We are subject to the New Jersey Shareholders' Protection Act, which could delay or prevent a change of control of us. In general, that Act prevents a shareholder owning 10% or more of a New Jersey public corporation's outstanding voting stock from engaging in business combinations with that corporation for five years following the date the shareholder acquired 10% or more of the corporation's outstanding voting stock, unless board approval is obtained prior to the time that the shareholder reaches the 10% threshold.

Failure to maintain effective internal controls in accordance with Sarbanes-Oxley could have a material adverse effect on our business and common stock price.

As a public company with SEC reporting obligations, we are required to document and test our internal control procedures to satisfy the requirements of Section 404(a) of Sarbanes-Oxley, which require annual assessments by management of the effectiveness of our internal control over financial reporting. As a smaller reporting company, we are exempt from the auditor attestation requirement of Section 404(b) of Sarbanes-Oxley.

During the course of our assessment, we may identify deficiencies that we are unable to remediate in a timely manner. Testing and maintaining our internal control over financial reporting may also divert management's attention from other matters that are important to the operation of our business. We may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404(a) of Sarbanes-Oxley. If we conclude that our internal control over financial reporting is not effective, we cannot be certain as to the timing of completion of our evaluation, testing and remediation actions or its effect on our operations. Moreover, any material weaknesses or significant deficiencies in our internal control over financial reporting may impede our ability to file timely and accurate reports with the SEC. Any of the above could cause investors to lose confidence in our reported financial information or our common stock listing on the NYSE American exchange to be suspended or terminated, which could have a negative effect on the trading price of our common stock.

The Company is subject to compliance with the policies and procedures of the NYSE American Exchange with respect to continued listing on the stock exchange and our failure to maintain our listing would make trades in our securities difficult for shareholders.

In considering whether a security warrants continued trading and/or listing on the NYSE American Exchange, many factors are taken into account, such as the degree of investor interest in the company, its prospects for growth, the reputation of its management, the degree of commercial acceptance of its products, and whether its securities have suitable characteristics for auction market trading. Thus, any developments which substantially reduce the size of a company, the nature and scope of its operations, the value or amount of its securities available for the market, or the number of holders of its securities, might occasion a review of continued listing by the Exchange. Moreover, events such as the sale, destruction, loss or abandonment of a substantial portion of a company's business, the inability to continue its business, steps towards liquidation, or repurchase or redemption of its securities, may also give rise to such a review. The loss of our listing on the Exchange could have a material adverse effect on our shareholders' ability to sell our shares or for others to purchase our shares. This could have an adverse effect on the market price of our stock.

We incur significant costs as a result of operating as a public company, and our management devotes substantial time to compliance initiatives.

We have incurred and will continue to incur significant legal, accounting and other expenses as a public company, including costs resulting from public company reporting obligations under the Exchange Act and regulations regarding corporate governance practices. The listing requirements of the NYSE American require that we satisfy certain corporate governance requirements relating to director independence, distributing annual and interim reports, stockholder meetings, stockholder approvals and voting, and soliciting proxies. Our management and other personnel will need to devote a substantial amount of time to ensuring compliance with all of these requirements.

We may be adversely affected by changes in LIBOR reporting practices, the method in which LIBOR is determined or the use of alternative reference rates.

Our credit facility with Bank of America and term loan facility with Muzinich BDC are indexed to the London Interbank Offered Rate ("LIBOR"). The United Kingdom's Financial Conduct Authority, which regulates LIBOR, has announced that it intends to stop encouraging or requiring banks to submit rates for the calculation of LIBOR rates after 2021, and it is unclear whether new methods of calculating LIBOR will be established, such that LIBOR may continue to exist after 2021. While there is no consensus on what rate or rates may become accepted alternatives to LIBOR, the Alternative Reference Rates Committee, a steering committee comprised of U.S. financial market participants, selected the Secured Overnight Finance Rate ("SOFR") as an alternative to LIBOR. SOFR is a broad measure of the cost of borrowing cash in the overnight U.S. treasury repo market, and the Federal Reserve Bank of New York started to publish the SOFR in May 2018. At this time, it is impossible to predict whether the SOFR or another reference rate will become an accepted alternative to LIBOR. The discontinuation, reform or replacement of LIBOR or any other benchmark rates may have an unpredictable impact on contractual mechanics in the credit markets or cause disruption to the broader financial markets, and could have an adverse effect on LIBOR-based interest rates on our current or future debt obligations.

If securities or industry analysts do not publish research or reports about our business or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock might be influenced by the research and reports that industry or securities analysts publish about us or our business. If any analysts issue an adverse or misleading opinion regarding us, our business model, products or stock performance, our stock price could decline.

Forward-Looking Statements

The statements contained in this Annual Report on Form 10-K that are not historical facts, including, without limitation, the statements under "Management's Discussion and Analysis of Financial Condition and Results of Operations," are forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995. Such forward-looking statements may be identified by, among other things, the use of forward-looking terminology such as "believes," "expects," "intends," "plans," "may," "will," "should," "anticipates" or "continues" or the negative thereof of other variations thereon or comparable terminology, or by discussions of strategy that involves risks and uncertainties. These statements are based on the Company's current expectations of future events and are subject to a number of risks and uncertainties that may cause the Company's actual results to differ materially from those described in the forward-looking statements. These risks and uncertainties are set forth in our annual report on Form 10-K and in this document. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those anticipated, estimated or projected. The Company assumes no obligation to update any forward-looking statements as a result of new information or future events or developments.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The Company leases a 45,700 square foot facility located in Hanover Township, Parsippany, New Jersey, which is currently being used as its principal corporate headquarters and manufacturing plant with respect to the Network Solutions and Test and Measurement Segments. In May 2015, the Company and its landlord entered into a lease agreement to extend the lease term for its principal corporate headquarters in New Jersey through March 31, 2023.

The Company leases office space in Leicestershire, England consisting of 4,900 square feet and Duisburg, Germany consisting of 7,446 square feet for the Embedded Solutions segment operations. The Leicestershire lease expires in November 2020 and the Duisburg lease is renewable every 3 months.

The Company believes its properties are suitable and adequate for its current purposes.

Item 3. Legal Proceedings

As previously disclosed, on June 5, 2019 Harris Corporation (“Harris”) filed a request for arbitration before the American Arbitration Association inaccordance with the terms of an executed purchase order, statement of work and software license agreement (collectively referred to as “Agreements”) with CommAgility entered into in 2014. Harris claims that CommAgility breached the Agreements by offering for sale, marketing, and promoting techniques, capabilities, products and services that incorporate Work Product, as defined in the Agreements, owned by Harris. Harris claims that CommAgility has caused Harris monetary damages, the sum of which cannot be determined until such time as discovery has been conducted, but is estimated by Harris to be less than $250,000. Harris is also seeking an injunction against CommAgility’s use of the Work Product which includes rights to certain technology used for air-to-ground communications. The Company believes the claims are without merit and intends to defend all of the claims vigorously. The Company has not accrued any amounts in respect of this matter and cannot estimate the possible loss, if any, that the Company may incur with respect to it.

The ultimate outcome of this matter is unknown but, in the opinion of management, we do not believe this proceeding will have a material adverse effect upon our financial condition, cash flows or future results of operations. Legal expenses incurred in connection with the arbitration from August 2019 are covered by our professional indemnity insurance policy.

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

The common stock of the Company is traded on the NYSE American under the name Wireless Telecom Group, Inc. (Symbol: WTT). On March 6, 2020, the Company had 364 stockholders of record. These stockholders of record do not include beneficial owners whose shares are held in "nominee" or "street name".

Recent Sales of Unregistered Securities

None in fiscal 2019.

Issuer Purchases of Equity Securities

The Company did not repurchase any securities during the year ended December 31, 2019.

Equity Compensation Plan Information

Set forth below is certain aggregated information with respect to the Company's equity compensation plans.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plan (excluding securities reflected in the previous columns)
Equity compensation plans approved by security holders	2,055,000	$ 1.53	1,695,079
Equity compensation plans not approved by security holders	-	-	-
Total	2,055,000	$ 1.53	1,695,079

Item 6. Selected Financial Data

Not applicable.

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

Overview

The Company is a global designer and manufacturer of advanced RF, microwave and millimeter wave components, modules, systems and instruments. Serving the wireless, telecommunication, satellite, military, aerospace, semiconductor and medical industries, Wireless Telecom Group products enable innovation across a wide range of traditional and emerging wireless technologies. With a unique set of high-performance products including peak power meters, signal analyzers, signal processing modules, LTE physical layer and stack software, power splitters and combiners, GPS repeaters, public safety monitors, noise sources, and programmable noise generators, Wireless Telecom Group supports the development, testing and deployment of wireless technologies around the globe.

Key 2019 Developments and Financial Results

Fiscal 2019 was a year with some disappointments as well as growth oriented investment. Consolidated and segment revenue declined from the prior year which negatively impacted profitability. These declines were driven by lower high margin software sales and delays of certain large projects expected to be awarded in the year. Lower software revenue was caused by the slowdown of 4G software sales which was not offset by the adoption of emerging 5G software and standards. Despite these challenges, the Company invested in future growth and profitability through acquisitions and R&D investments and believes the revenue declines in 2019 can be overcome.

The decline in Embedded Solutions software and services revenue from prior years represented declines in the Company's highest margin revenue streams. Further, the Test and Measurement segment experienced a 4.5% revenue decline as large government projects were delayed, but increased segment gross profit margin from 49.4% to 54.0%. The industry in which the Network Solutions segment operates was impacted by highly competitive pricing from offshore vendors as well as a slowdown in large venue projects. The Test and Measurement segment gross profit margin increased on higher demand of noise generation devices and real time power sensors. The Company also invested heavily in 5G NR product roadmap development in fiscal 2019 and, in January 2020, announced a collaboration with NXP Semiconductors to accelerate 5G hardware and software development. At the same time, the Company maintained an active merger and acquisition pipeline as part of its strategic plan to add complimentary, accretive and profitable businesses and drive growth opportunity through acquisitions. In connection with this, the Company signed a definitive agreement to purchase Holzworth Instrumentation, Inc. in the fourth quarter which closed on February 7, 2020. Holzworth is a Colorado based provider of specialty noise analyzers and signal generators which is an adjacent product line to our Boonton brand.

The Company presents its operations in three reportable segments: (1) Network Solutions, (2) Test and Measurement and (3) Embedded Solutions. In fiscal 2019 the Network Solutions segment is comprised primarily of the operations of Microlab; the Test and Measurement segment is comprised of the operations of Boonton and Noisecom; and the Embedded Solutions segment is comprised of CommAgility.

The financial information presented herein includes: (i) Consolidated Balance Sheets as of December 31, 2019 and 2018; (ii) Consolidated Statements of Operations and Comprehensive Loss for the years ended December 31, 2019 and 2018; (iii) Consolidated Statement of Changes in Shareholders' Equity for the years ended December 31, 2019 and 2018; and (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2019 and 2018.

Critical Accounting Policies

Management's discussion and analysis of the financial condition and results of operations are based upon the consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America, or U.S. GAAP. The preparation of these financial statements requires the Company to make estimates and judgments that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses for each period. The following represents a summary of the Company's critical accounting policies, defined as those policies that the Company believes are: (a) the most important to the portrayal of our financial condition and results of operations, and (b) that require management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effects of matters that are inherently uncertain. Estimates and assumptions are made by management to assess the overall likelihood that an accounting estimate or assumption may require adjustment. It is reasonably possible that these estimates may ultimately differ materially from actual results. See Note 1 in the Notes to the Consolidated Financial Statements included elsewhere in this Form 10-K for a description of all of our significant accounting policies.

Revenue Recognition

Effective January 1, 2018 the Company adopted Accounting Standards Update ("ASU") 2014-09, "Revenue from Contracts with Customers (Topic 606)", ("Topic 606") using the "modified retrospective" method, meaning the standard is applied only to the most current period presented in the financial statements. Topic 606 requires the Company to identify the performance obligations in our revenue arrangements – that is, those promised goods and services (or bundles of promised goods or services) that are distinct – and allocate the transaction price of the revenue arrangement to those performance obligations on the basis of estimated standalone selling prices ("SSP's").

Sales of hardware which include sales of radio frequency solutions in the Network Solutions segment, digital signal processing hardware in the Embedded Solutions segment and power meters and analyzers and noise generators and components in the Test and Measurement segment generally consist of one performance obligation which is satisfied upon shipment to the customer. When contract terms require transfer of control upon delivery at a customer's location, revenue is recognized on the date of delivery. Sales of hardware to distributors that include a limited right of return are recorded net of expected returns.

Sale of software licenses in the Embedded Solutions segment may involve multiple performance obligations including multiple software releases and consultancy services. In these cases transaction price is allocated to each distinct performance obligation on the basis of SSP and revenue is recognized when the distinct performance obligation is satisfied. The company determines performance obligations and SSP's in arrangements with multiple performance obligations in accordance with Topic 606 which requires significant judgement.

Services arrangements involving repairs and calibrations in the Company's Test and Measurement segment are generally considered a single performance obligation and revenue is recognized as the services are rendered.

Certain software arrangements in the Embedded Solutions segment may involve the transfer of software along with significant customization services. In these cases the customization services and software licenses are combined as one distinct performance obligation and revenue is recognized over time as the project is completed. The duration of these performance obligations are typically one year or less.

Leases

We lease office space and certain equipment under non-cancelable lease agreements. Prior to January 1, 2019, we applied the accounting guidance in ASC 840, *Leases*, to our lease agreements. The leases were reviewed for classification as operating or capital leases. For operating leases, rent was recognized on a straight-line basis over the lease period. For capital leases, we recorded the leased asset with a corresponding liability and amortized the asset over the lease term. Payments were recorded as reductions to the liability with an appropriate interest charge recorded based on the then-outstanding remaining liability.

Effective January 1, 2019, we adopted ASU No. 2016-02, *Leases (Topic 842)* using the modified retrospective transition method and established our lease accounting policy pursuant to this new standard. We initially applied the transition provisions at January 1, 2019, which allowed us to continue to apply the legacy guidance in ASC 840 for periods prior to 2019. Based on the new guidance, we assess all arrangements, that convey the right to control the use of property, plant and equipment, at inception, to determine if it is, or contains, a lease based on the unique facts and circumstances present in that arrangement. For those leases identified, we determine the lease classification, recognition, and measurement at the lease commencement date. For arrangements that contain a lease we: (i) identify lease and non-lease components; (ii) determine the consideration in the contract; (iii) determine whether the lease is an operating or financing lease; and (iv) recognize lease Right of Use ("ROU") assets and corresponding lease liabilities. Lease liabilities are recorded based on the present value of lease payments over the expected lease term. The corresponding ROU asset is measured from the initial lease liability, adjusted by (i) accrued or prepaid rents; (ii) remaining unamortized initial direct costs and lease incentives; and (iii) any impairments of the ROU asset. The interest rate implicit in our lease contracts is typically not readily determinable and as such, we use our incremental borrowing rate based on the information available at the lease commencement date, which represents an internally developed rate that would be incurred to borrow, on a collateralized basis, over a similar term, an amount equal to the lease payments in a similar economic environment.

Business Combinations

Business combinations are accounted under the acquisition method of accounting in accordance with Accounting Standards Codification ("ASC") 805, "Business Combinations" which requires assets acquired and liabilities assumed be recorded at their fair values on the acquisition date. Goodwill represents the excess of the purchase price over the fair value of the net assets acquired. The fair values of the assets acquired and liabilities assumed are determined based upon management's valuation and involves making significant estimates and assumptions based on facts and circumstances that existed as of the acquisition date. We use a measurement period following the acquisition date to gather information that existed as of the acquisition date that is needed to determine the fair value of the assets acquired and liabilities assumed. The measurement period ends once all information is obtained, but no later than one year from the acquisition date.

Valuation of Goodwill

Goodwill represents the excess of the aggregate purchase price over the fair value of the net assets acquired in a purchase business combination. Goodwill is evaluated for impairment annually by first performing a qualitative evaluation of events and circumstances impacting the reporting unit to determine the likelihood of goodwill impairment. Based on that qualitative evaluation, if we determine it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, no further evaluation is necessary. Otherwise we perform a quantitative impairment test.

As of December 31, 2019 the Company's consolidated goodwill balance of $10.1 million is comprised of $1.4 million related to the Microlab reporting unit and $8.7 million related to the CommAgility reporting unit. The Company performed a qualitative assessment in the fourth quarter of 2019 of each reporting unit. The qualitative assessment of Microlab did not indicate any impairment of goodwill. As a result of declining future demand of the CommAgility's signal processing hardware and the uncertainty associated with new software license and services revenues to offset the signal processing hardware sales decline, the Company performed a quantitative impairment test of the goodwill of the CommAgility reporting unit.

For goodwill impairment testing using the quantitative approach, the Company estimates the fair value of the selected reporting unit primarily through the use of a discounted cash flow model based on our best estimate of amounts and timing of future revenues and cash flows and our most recent business and strategic plans, and compares the estimated fair value to the carrying value of the reporting unit, including goodwill. If the fair value of the reporting unit exceeds the carrying value, no impairment charge is recorded. If the carrying value of the reporting unit exceeds the fair value an impairment charge is recorded to goodwill in the amount by which carrying value exceeds fair value. The discounted cash flow model requires judgmental assumptions about projected revenue growth, future operating margins, discount rates and terminal values over a multi-year period. There are inherent uncertainties related to these assumptions and management's judgment in applying them to the analysis of goodwill impairment. While the Company believes it has made reasonable estimates and assumptions to calculate the fair value of its reporting units, it is possible a material change could occur. If actual results are not consistent with management's estimates and assumptions, goodwill may be overstated and a charge would need to be taken against net earnings.

Changes in our projections used in the discounted cash flow model could affect the estimated fair value of the Company's reporting unit and could result in a goodwill impairment charge in a future period. In order to evaluate the sensitivity of the fair value calculations used in the quantitative goodwill impairment test, the Company applied a hypothetical 10% decrease to the fair value of the CommAgility reporting unit and compared those values to the carrying value. Based on this sensitivity analysis, the Company did not identify any goodwill impairment. Due to the many variables inherent in the estimation of a reporting unit's fair value and the relative size of our recorded goodwill, differences in assumptions may have a material effect on the results of our impairment analysis.

As of December 31, 2018 the Company's consolidated goodwill balance of $9.8 million was comprised of $1.4 million related to the Microlab reporting unit and $8.4 million related to the CommAgility reporting unit. Management's qualitative assessment performed in the fourth quarters of 2018 did not indicate any impairment of goodwill.

Intangible and Long-lived Assets

Intangible assets include patents, non-competition agreements, customer relationships and trademarks. Intangible assets with finite lives are amortized using the straight-line method over the estimated economic lives of the assets, which range from three to five years. Long-lived assets, including intangible assets with finite lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability is based on an estimate of undiscounted future cash flows resulting from the use of the asset and its eventual disposition. Measurement of an impairment loss for long-lived assets that management expects to hold and use is based on the estimated fair value of the asset. Long-lived assets to be disposed of are reported at the lower of carrying amount or estimated fair value less costs to sell. The estimated useful lives of intangible and long-lived assets are based on many factors including assumptions regarding the effects of obsolescence, demand, competition and other economic factors, expectations regarding the future use of the asset, and our historical experience with similar assets. The assumptions used to determine the estimated useful lives could change due to numerous factors including product demand, market conditions, technological developments, economic conditions and competition.

Intangible assets determined to have indefinite useful lives are not amortized but are tested for impairment annually and more frequently if events occur or circumstances change that indicate an asset may be impaired.

Income taxes

The Company records deferred taxes in accordance with ASC 740, “Accounting for Income Taxes.” ASC 740 requires recognition of deferred tax assets and liabilities for temporary differences between tax basis of assets and liabilities and the amounts at which they are carried in the financial statements, based upon the enacted rates in effect for the year in which the differences are expected to reverse. The Company establishes a valuation allowance when necessary to reduce deferred tax assets to the amount expected to be realized. The Company periodically assesses the value of its deferred tax assets and determines the necessity for a valuation allowance.

Realization of the Company’s deferred tax assets is dependent upon the Company generating sufficient taxable income in the appropriate tax jurisdictions in future years to obtain benefit from the reversal of net deductible temporary differences and from utilization of net operating losses. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed.

Uncertain tax positions

Under ASC 740, the Company must recognize and disclose uncertain tax positions only if it is more-likely-than-not that the tax position will be sustained on examination by the taxing authority, based on the technical merits of the position. The amounts recognized in the financial statements attributable to such position, if any, are recorded if there is a greater than 50% likelihood of being realized upon the ultimate resolution of the position.

The Company has analyzed its filing positions in all of the jurisdictions where it is required to file income tax returns. As of December 31, 2019 and 2018, the Company has identified its federal tax return and its state tax return in New Jersey as “major” tax jurisdictions, as defined in ASC 740, in which it is required to file income tax returns. Additionally, the Company has identified the United Kingdom as “major” tax jurisdiction as of December 31, 2019 and 2018. Based on the evaluations noted above, the Company has concluded that there are no significant uncertain tax positions requiring recognition or disclosure in its consolidated financial statements.

Based on a review of tax positions for all open years and contingencies as set out in the Company’s Notes to the consolidated financial statements, no reserves for uncertain income tax positions have been recorded pursuant to ASC 740 during the years ended December 31, 2019 and 2018, and the Company does not anticipate that it is reasonably possible that any material increase or decrease in its unrecognized tax benefits will occur within the next twelve months.

Stock-based compensation

The Company follows the provisions of ASC 718, “Compensation - Stock Compensation” which requires that compensation expense be recognized based on the fair value of the stock awards. The fair value of the stock awards is equal to the fair value of the Company’s stock on the date of grant. The fair value of options at the date of grant is estimated using the Black-Scholes option pricing model. When options are granted, the Company takes into consideration guidance under ASC 718 and SEC Staff Accounting Bulletin No. 107 (SAB 107) when determining assumptions. The expected option life is derived from assumed exercise rates based upon historical exercise patterns and represents the period of time that options granted are expected to be outstanding. The expected volatility is based upon historical volatility of our shares using daily price observations over an observation period that approximates the expected life of the options. The risk-free rate is based on the U.S. Treasury yield curve rate in effect at the time of grant for periods similar to the expected option life. The Company accounts for forfeitures when they occur.

Management estimates are necessary in determining compensation expense for stock options with performance-based vesting criteria. Compensation expense for this type of stock-based award is recognized over the period from the date the performance conditions are determined to be probable of occurring through the date the applicable conditions are expected to be met. If the performance conditions are not considered probable of being achieved, no expense is recognized until such time as the performance conditions are considered probable of being met, if ever. Management evaluates whether performance conditions are probable of occurring on a quarterly basis.

Inventories and Inventory Valuation

Inventories are stated at the lower of cost (average cost) or net realizable value. The Company reviews inventory for excess and obsolescence based on best estimates of future demand, product lifecycle status and product development plans.

Allowances for doubtful accounts

The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. A key consideration in estimating the allowance for doubtful accounts has been, and will continue to be, our customer's payment history and aging of its accounts receivable balance.

Impairment of long-lived assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability is based on an estimate of undiscounted cash flows resulting from the use of the assets and their eventual disposition. Measurement of an impairment loss for long-lived assets that management expects to hold for sale is based on the fair value of the assets. Long-lived assets to be disposed of are reported at the lower of carrying amount or fair value less costs to sell.

Warranties

The Company generally offers standard warranties against product defects. We estimate future warranty costs to be incurred based on historical warranty claims experience including estimates of material and service costs over the warranty period.

<u>Comparison of the results of operations for the year ended December 31, 2019 with the year ended December 31, 2018</u>

Net Revenues (in thousands)

	Twelve months ended December 31					
	Revenue		% of Revenue		Change	
	2019	2018	2019	2018	Amount	Pct.
Network Solutions	$ 21,830	$ 22,275	44.6%	42.2%	$ (445)	-2.0%
Test and Measurement	13,566	14,212	27.7%	26.9%	(646)	-4.5%
Embedded Solutions	13,525	16,301	27.7%	30.9%	(2,776)	-17.0%
Total Net Revenues	$ 48,921	$ 52,788	100.0%	100.0%	$ (3,867)	-7.3%

Consolidated net revenues were impacted by declines in all three segments. Embedded Solutions revenue decreased from the prior year on lower sales of LTE software licenses and related services offset only partially by increased sales of digital processing hardware to our largest customer. We believe that the transition from 4G to 5G was a factor in the decline in software license revenue and related services. Test and Measurement revenues declined on fewer government orders and large projects. Network Solutions revenues were lower than the prior year due to fewer large venue projects and a highly competitive pricing environment impacting the entire industry.

As part of our 2020 planning process, the Company determined that demand for our Embedded Solutions digital signal processing hardware cards from the Company's largest customer will be significantly reduced from levels in fiscal 2019 and 2018. The Company expects the decline in Embedded Solutions hardware revenue to be partially offset by increased higher margin software license and services specifically related to 5G NR private network projects. Overall, however, the Company expects a decline in revenues for Embedded Solutions in 2020 as compared to 2019.

Gross Profit (in thousands)

	Twelve months ended December 31					
	Gross Profit		Gross Profit %		Change	
	2019	2018	2019	2018	Amount	Pct.
Network Solutions	$ 9,216	$ 9,756	42.2%	43.8%	$ (540)	-5.5%
Test and Measurement	7,320	7,018	54.0%	49.4%	302	4.3%
Embedded Solutions	5,753	7,393	42.5%	45.4%	(1,640)	-22.2%
Total Gross Profit	$ 22,289	$ 24,167	45.6%	45.8%	$ (1,878)	-7.8%

Consolidated gross profit margin in 2019 was flat compared to 2018. Gross profit margin in the Test and Measurement segment increased from the prior year on favorable product mix as the Company sold higher margin Noisecom noise generation devices as well as Boonton power sensors. Network Solutions gross profit margins declined year over year due to a highly competitive pricing environment impacting the entire passive RF industry as well as lower volumes resulting in lower absorption of fixed labor and overhead charges. Embedded Solutions gross profit margin declined on product mix as higher margin software and service sales declined year over year as well as lower volumes resulting in lower absorption of fixed labor and overhead charges.

Operating Expenses (in thousands)

	Twelve months ended December 31					
	Operating Expenses		% of Revenue		Change	
	2019	2018	2019	2018	Amount	Pct.
Research and Development	$ 5,917	$ 4,909	12.1%	9.3%	$ 1,008	20.5%
Sales and Marketing	7,677	7,595	15.7%	14.4%	82	1.1%
General and Administrative	10,174	10,306	20.8%	19.5%	(132)	-1.3%
Loss on Change in Fair Value of Contingent Consideration	-	578	0.0%	1.1%	(578)	-100.0%
Total Operating Expenses	$ 23,768	$ 23,388	48.6%	44.3%	$ 380	1.6%

Research and development expenses overall increased $1.0 million primarily due to increased expenses in the Embedded Solutions segment. Embedded Solutions segment research and development expenses increased $1.4 million primarily for headcount deployment on product roadmap initiatives, specifically the 5G NR product roadmap. The increase in the Embedded Solutions segment research and development expenses was offset by a $0.4 million decrease in research and development expenses in the Network Solutions and Test and Measurement segments due to headcount reductions and lower third party spend.

Sales and marketing expenses increased $0.1 million primarily due to increased headcount in the Test and Measurement and Network Solutions segments offset by lower commission expense in the Embedded Solutions segment due to lower volumes.

General and administrative expenses decreased $0.1 million due to lower bonus, legal and stock compensation expenses offset by higher mergers and acquisitions expenses.

In 2018 the Company recorded a loss on change in fair value of contingent consideration of $0.6 million as our estimate of the earn-out payment related to the CommAgility acquisition was increased from our original estimate recorded at the time of acquisition due to the then improved financial results of the business. The contingent consideration payment was made in Q1 2019.

In early fiscal 2020, the Company undertook restructuring actions and cost and expense reductions across all of its segments to drive efficiency and improved operation leverage. These actions are expected to reduce consolidated costs and expenses in fiscal 2020 by approximately $1.5 million as compared to fiscal 2019.

Other income/expense

Other expenses decreased $0.1 million due to lower foreign exchange unrealized and realized losses on transactions denominated in currencies other than our functional currencies.

Interest Expense

Interest expense decreased $0.3 million primarily due to lower interest expense related to the CommAgility contingent consideration liability as final payment was made in March 2019.

Tax

The Company recorded a tax benefit in fiscal 2019 of $1.4 million due primarily to a net taxable loss in the U.K. driven by deductible research and development expenses as compared to a tax expense in fiscal 2018 of $48,000 due to deferred federal taxes in the U.S. offset by current and deferred tax benefits related to the U.K.

Net Loss

The Company recorded a net loss in the amount of $0.4 million in fiscal 2019 as compared to net income of $35,000 in fiscal 2018 due to lower consolidated gross profit and higher operating expenses partially offset by lower consolidated interest expense and the recognition of a tax benefit.

Liquidity and Capital Resources

As disclosed in Note 4 to the Consolidated Financial Statements, on February 16, 2017 the Company entered into a Credit Facility which provided for a term loan in the aggregate principal amount of $0.8 million (the “Term Loan”) and an asset based revolving loan (the “Revolver”), which is subject to a Borrowing Base Calculation (as defined in the Credit Facility) of up to a maximum availability of $9 million. The proceeds of the Term Loan and Revolver were used to finance the acquisition of CommAgility. On February 26, 2019 the Company entered into Amendment No. 3 to the Credit Facility which extended the term of the Revolver to March 31, 2020, and on November 8, 2019 the Company entered into Amendment No. 4 to the Credit Facility which extended the maturity date of the Term Loan to March 31, 2020 to coincide with that of the Revolver. As described more fully below, on February 7, 2020, in connection with the Holzworth acquisition, the Company entered into Amendment No. 5 to the Credit Facility which, inter alia, extended the Revolver maturity date to March 31, 2023. Additionally, the Company prepaid the remaining principal balance of Term Loan in the amount of $0.3 million.

As of December 31, 2019 the Company had consolidated net cash (consolidated cash and cash equivalents less consolidated debt outstanding) of $1.5 million as compared to net cash of $3.0 million as of December 31, 2018. The decrease in net cash was primarily attributable to a net loss in 2019 as compared to net earnings in 2018 and the payment of deferred purchase price and contingent consideration in the first quarter of 2019 related to the CommAgility acquisition offset by lower working capital and lower capital expenditures as compared to the prior year. As of December 31, 2019, substantially all of our cash and cash equivalents are held outside the United States. As of December 31, 2019, $2.4 million was outstanding on our asset based Revolver and $0.3 million was outstanding on our Term Loan. As of December 31, 2019 and 2018, and the date hereof, the Company is in compliance with the covenants of the Credit Facility. The asset based Revolver under our Credit Facility is secured by the Company’s U.S. assets. Income taxes have been provided on foreign earnings such that there would be no significant income tax expense to repatriate the portion of this cash that is not required to meet operational needs of our international subsidiary.

Operating Activities

Cash provided by operating activities was $80,000 for the year ended December 31, 2019 as compared to cash provided by operating activities of $4.0 million for the year ended December 31, 2018. The decline was primarily due to lower operating income, the payment of contingent consideration, a portion of which is included as cash used from operations in accordance with ASU 2016-15, payment of deferred purchase price and 2018 bonuses, which are reflected as a decrease in accrued expenses and other current liabilities offset by cash generated from working capital.

Investing Activities

Cash used by investing activities was $0.8 million for the year ended December 31, 2019 and was primarily comprised of cash used for capital expenditures of $0.4 million and payment of deferred purchase price related to the CommAgility acquisition of $0.4 million. For the year ended December 31, 2018 cash used by investing activities was $1.7 million and was primarily related to cash used for the payment of the CommAgility deferred purchase price of $0.8 million and capital expenditures of $0.9 million.

Financing Activities

Cash used by financing activities was $0.2 million for the year ended December 31, 2019 as compared to cash provided by financing activities of $0.5 million for the year ended December 31, 2018. During the year ended December 31, 2019, cash used by financing included net borrowings under the Credit Facility of $0.8 million offset by payment of contingent consideration related to the CommAgility acquisition, of which $0.8 million is included in financing activities, payment of fees related to our new term loan and amended credit facility of $0.1 million, and term loan payments of $0.2 million. During the year ended December 31, 2018, net borrowings under the Credit Facility were $0.3 million and proceeds from stock option exercises were $0.3 million which were both partially offset by Term Loan principal payments of $0.2 million.

New Term Loan Facility and Amended Credit Facility

In connection with the Holzworth Acquisition, on February 7, 2020, the Company, as borrower, and its subsidiaries, as guarantors, and Muzinich BDC, Inc., as lender ("Muzinich"), entered into a Term Loan Facility, which provides for a term loan in the principal amount of $8.4 million (the "Initial Term Loan"). All proceeds of the Initial Term Loan were used to fund the cash portion of the purchase price for the Holzworth acquisition. Principal payments on the Initial Term Loan are $21,000 per quarter with a balloon payment at maturity. The term loan bears interest at LIBOR (subject to a floor of 1.0%) plus a margin of 7.25%. The Term Loan Facility includes an upfront fee of 2.50% of the aggregate principal amount of the Initial Term Loan.

The Company may prepay the Initial Term Loan at any time. Prepayments made prior to (a) February 7, 2022 are subject to a prepayment premium in the amount of 2.0% of the prepaid principal amount and (b) February 7, 2023 are subject to a prepayment premium in the amount of 1.0% of the prepaid principal amount. The Company is required to make prepayments of the Initial Term Loan with the proceeds of certain asset dispositions, insurance recoveries and extraordinary receipts, subject to specified reinvestment rights. The Company is also required to make prepayments of the Initial Term Loan upon the issuance of certain indebtedness and to make an annual prepayment based upon the Company's excess cash flow. Mandatory prepayments with asset sale, insurance or condemnation proceeds and excess cash flow may be made without penalty. Mandatory prepayments with the proceeds of indebtedness are subject to the same prepayment penalties as are applicable to voluntary prepayments. The maturity date for the Initial Term Loan is February 7, 2025.

The Term Loan Facility provides for an additional $11.6 term loan (the "Second Term Loan") to be used for a second unannounced acquisition for which the Company has entered into a confidential, non-binding letter-of-intent (the "Additional Acquisition"). There can be no assurance that the Additional Acquisition will be completed. In the event the Additional Acquisition is completed, the Second Term Loan will be made available to the Company on the same terms and conditions as the Initial Term Loan, including interest rate, amortization schedule and financial covenants, subject to the payment of an additional upfront fee and satisfaction of customary conditions to funding.

The Term Loan Facility is secured by liens on substantially all of the Company's and its subsidiaries' assets including a pledge of the equity interests in the Company's subsidiaries. The Term Loan Facility contains customary affirmative and negative covenants for a transaction of this type, including, among others, the provision of annual, quarterly and monthly financial statements and compliance certificates, maintenance of property, insurance, compliance with laws and environmental matters, restrictions on incurrence of indebtedness, granting of liens, making investments and acquisitions, paying dividends, entering into affiliate transactions and asset sales. In addition, the Company must maintain certain financial covenants typical for this type of arrangement, including a consolidated leverage ratio, a consolidated fixed charge coverage ratio and minimum liquidity of its foreign subsidiaries. The consolidated leverage ratio is defined as the ratio of total consolidated indebtedness, as defined, to consolidated EBITDA, as defined. The required leverage ratio starts at 4.75 to 1.0 for the twelve month periods ended March 31, 2020 and June 30, 2020, and decrease in various increments to 3.75 to 1.0 for the twelve months ended December 31, 2020, 2.75 to 1.0 for the twelve months ended December 31, 2021 and 2.0 to 1.0 for the twelve months ended December 31, 2022 and thereafter. The consolidated fixed charge coverage ratio is the ratio of consolidated EBITDA, as defined, less consolidated capital expenditures and cash income taxes paid to consolidated fixed charges, as defined, calculated on a twelve month basis. The consolidated fixed charge coverage ratio for the twelve month periods ended March 31, 2020, June 30 2020 and September 30, 2020 must be 1.35 to 1 and increases in various increments on a quarterly basis to 1.5 to 1.0 for the twelve month period ended December 31, 2020 and 2021, and to 1.75 to 1.0 for the twelve months ending December 31, 2022 and thereafter. Lastly, the Company must maintain minimum liquidity, defined as cash and availability under the UK borrowing base, as defined, of $1.0 million over any trailing four-week period until such time as the foreign subsidiary has positive EBITDA, as defined, for three consecutive quarters and the Holzworth deferred purchase price has been paid in full. The Term Loan Facility also provides for a number of events of default, including, among others, nonpayment, bankruptcy, inaccuracy of representations and warranties, breach of covenant, change in control, entry of final judgement or order, breach of material contracts, and as long as the Company's consolidated leverage ratio is greater than 1.0 to 1.0 (as calculated in accordance with the terms of the Term Loan Facility), the cessation of service of any two of Tim Whelan, Michael Kandell or Daniel Monopoli as Chief Executive Officer, Chief Financial Officer or Chief Technology Officer, respectively, of the Borrower without acceptable replacements within 60 days. Any exercise of remedies by Muzinich is subject to compliance with the intercreditor agreement entered into at the closing of the Term Loan Facility among the Company, Muzinich and Bank of America, N.A., as lender under the Credit Facility referenced below.

Also in connection with the Acquisition, on February 7, 2020, the Company and certain of its subsidiaries (the "Borrowers"), and Bank of America, N.A. entered into Amendment No. 5 (the "Amendment") to the Credit Facility. By entering into the Amendment, Holzworth, and CommAgility Limited, became borrowers under the Credit Facility. The obligations of the Borrowers under the Credit Facility are guaranteed by Wireless Telecom Group, Ltd. CommAgility Limited and Wireless Telecom Group, Ltd., are both wholly owned subsidiaries of the Company.

Amendment No. 5 (a) effected certain modifications to the Credit Facility to accommodate the Holzworth Acquisition, the Company's incurrence of the Initial Term Loan and the granting of the related liens and security interests, (b) subject to the satisfaction of certain conditions precedent, made available to CommAgility an asset based revolving loan, subject to a borrowing base calculation applicable to CommAgility's assets, of up to a maximum availability of $5.0 million (the "UK Revolver Commitment"), (c) reduced the interest rate margin applicable to revolving loans made under the Credit Facility from a range of 2.75% to 3.25% to a range of 2.00% to 2.50%, based on the Borrowers' Fixed Charge Coverage Ratio (as defined in the Credit Facility) of the most recently completed fiscal quarter, (d) extended the Revolver Termination Date to March 31, 2023 and (e) conditioned the Borrowers' ability to make certain debt payments under the Term Loan Facility (described above) upon compliance with a liquidity test. In all other material respects, the Credit Facility remains unchanged.

Effectiveness of Amendment No. 5 was conditioned upon, among other things, the prepayment of the remaining principal balance (approximately $0.3 million) of the $0.8 million term loan made available under the Credit Facility and the payment of a closing fee in the amount of $25,000. The Borrowers satisfied all such conditions on February 7, 2020.

Any exercise of remedies by Bank of America, N.A. under the Credit Facility is subject to compliance with the intercreditor agreement entered into at the closing of Amendment No. 5 among the Company, Muzinich, as lender under the Term Loan Facility, and Bank of America, N.A.

The Company expects to realize tax benefits in future periods due to the available net operating loss carryforwards resulting from the disposition of a former wholly owned subsidiary in 2010. Accordingly, future taxable income is expected to be offset by the utilization of operating loss carryforwards and as a result will increase the Company's liquidity as cash needed to pay federal and state income taxes will be substantially reduced. Additionally, CommAgility benefits from a research and development deduction which significantly reduces the cash needed to pay taxes in the UK.

The Company may pursue strategic opportunities, including potential acquisitions, mergers, divestitures or other activities, which may require significant use of the Company's capital resources. The Company may incur costs as a result of such activities and such activities may affect the Company's liquidity in future periods. In order to fund such activities, the Company may need to incur additional debt or issue additional securities if market conditions are favorable. However, there can be no certainty that such funding will be available in needed quantities on terms favorable to the Company or at all.

On August 27, 2018 the Company filed a shelf registration statement on Form S-3 which was declared effective on September 17, 2018. The Form S-3 will permit the Company to issue and sell, from time to time, up to $40 million in aggregate value of shares of its common stock through one or more methods of distribution, subject to applicable SEC limits on the value of securities that the Company, as a smaller reporting company, may sell during an applicable period, market conditions, and the Company's capital desires and needs. The Company has no current plans to offer any common stock under the shelf registration statement. The terms of any offering of the Company's common stock, and the intended use of the net proceeds resulting therefrom, will be established at the times of the offerings and will be described in prospectus supplements filed with the SEC at the times of the offerings. The shelf registration statement is intended to provide financial flexibility to access capital in a competitive and expeditious manner when market conditions are appropriate.

The Company expects demand for its Embedded Solutions signal processing hardware cards from the Company's largest customer to be significantly lower in fiscal 2020 as compared to fiscal 2019. The Company expects this hardware revenue decline to be partially offset by increased Embedded Solutions software and services revenue but expects this transition to take several quarters. Additionally, the Company undertook restructuring actions and cost and expense reductions across all of its segments in early 2020 to drive efficiency and improved operating leverage.

We expect borrowings available to us under our Credit Facility, our existing cash balance and cash generated by operations will be sufficient to meet our liquidity needs for the next twelve months. The Company expects the cash flow of Holzworth to fund the deferred purchase price related to the Holzworth Acquisition. Our ability to meet our cash requirements will depend on our ability to generate cash in the future, which is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control.

Purchase obligations consist of inventory that arises in the normal course of business operations. Future obligations and commitments as of December 31, 2019 consisted of the following:

Table of Contractual Obligations
Payments by year (in thousands)

	Total	2020	2021	2022	2023
Facility Leases	$ 1,597	$ 512	$ 474	$ 488	$ 123
Operating and Equipment Leases	117	54	54	9	-
Purchase Obligations	3,652	3,652	-	-	-
	$ 5,366	$ 4,218	$ 528	$ 497	$ 123

Off-Balance Sheet Arrangements

Other than contractual obligations incurred in the normal course of business, the Company does not have any off-balance sheet arrangements.

Effects of Inflation and Changing Prices

The Company does not anticipate that inflation or other expected changes in prices will significantly impact its business.

Recent Accounting Pronouncements Affecting the Company

A discussion of recent accounting pronouncements is included in Note 1 to the Consolidated Financial Statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Not applicable.

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Wireless Telecom Group, Inc.

To the Board of Directors and Shareholders
Wireless Telecom Group, Inc.
Parsippany, NJ

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Wireless Telecom Group, Inc. (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations and comprehensive income/(loss), changes in shareholders' equity and cash flows for each of the two years in the period ended December 31, 2019, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinion

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

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

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

/s/ PKF O'Connor Davies, LLP

We have served as the Company's auditor since 2006.

New York, New York
March 19, 2020

CONSOLIDATED BALANCE SHEETS

Wireless Telecom Group, Inc.
(In thousands, except number of shares and par value)

	December 31 2019	December 31 2018
CURRENT ASSETS		
Cash & Cash Equivalents	$ 4,245	$ 5,015
Accounts Receivable - net of reserves of $69 and $44, respectively	6,152	8,638
Inventories - net of reserves of $969 and $1,910, respectively	7,325	6,884
Prepaid Expenses and Other Current Assets	1,871	1,689
TOTAL CURRENT ASSETS	19,593	22,226
PROPERTY PLANT AND EQUIPMENT - NET	2,147	2,578
OTHER ASSETS		
Goodwill	10,069	9,778
Acquired Intangible Assets, net	2,219	3,206
Deferred Income Taxes	6,013	5,592
Right of Use Assets	1,436	-
Other Assets	874	787
TOTAL OTHER ASSETS	20,611	19,363
TOTAL ASSETS	$ 42,351	$ 44,167
CURRENT LIABILITIES		
Short Term Debt	$ 2,696	$ 2,016
Accounts Payable	2,227	3,252
Short Term Leases	440	-
Accrued Expenses and Other Current Liabilities	2,657	6,083
Deferred Revenue	42	103
TOTAL CURRENT LIABILITIES	8,062	11,454
LONG TERM LIABILITIES		
Long Term Leases	1,018	-
Other Long Term Liabilities	77	115
Deferred Tax Liability	503	616
TOTAL LONG TERM LIABILITIES	1,598	731
COMMITMENTS AND CONTINGENCIES		
SHAREHOLDERS' EQUITY		
Preferred Stock, $.01 par value, 2,000,000 shares authorized, none issued	-	-
Common Stock, $.01 par value, 75,000,000 shares authorized, 34,488,252 and 34,393,252 shares issued, 21,300,251 and 21,205,251 shares outstanding	345	344
Additional Paid in Capital	49,062	48,479
Retained Earnings	7,142	7,556
Treasury Stock at Cost, 13,188,000	(24,509)	(24,509)
Accumulated Other Comprehensive Income	651	112
TOTAL SHAREHOLDERS' EQUITY	32,691	31,982
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 42,351	$ 44,167

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME/(LOSS)

Wireless Telecom Group, Inc.
(In thousands, except per share amounts)

	Twelve Months Ended December 31	
	2019	2018
NET REVENUES	$ 48,921	$ 52,788
COST OF REVENUES	26,632	28,621
GROSS PROFIT	22,289	24,167
Operating Expenses		
Research and Development	5,917	4,909
Sales and Marketing	7,677	7,595
General and Administrative	10,174	10,306
(Gain)/Loss on Change in Fair Value of Contingent Consideration	-	578
Total Operating Expenses	23,768	23,388
Operating Income/(Loss)	(1,479)	779
Other Income/(Expense)	(2)	(121)
Interest Expense	(305)	(575)
Income/(Loss) before taxes	(1,786)	83
Tax Provision/(Benefit)	(1,372)	48
Net Income/(Loss)	$ (414)	$ 35
Other Comprehensive Income/(Loss):		
Foreign Currency Translation Adjustments	539	(892)
Comprehensive Income/(Loss)	$ 125	$ (857)
Earnings/(Loss) Per Share:		
Basic	$ (0.02)	$ 0.00
Diluted	$ (0.02)	$ 0.00
Weighted Average Shares Outstanding:		
Basic	21,111	20,858
Diluted	21,111	21,566

In periods with a net loss, the basic loss per share equals the diluted loss per share as all common stock equivalents are excluded from the per share calculation because they are anti-dilutive.

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

Wireless Telecom Group, Inc.
(In thousands, except share amounts)

	Common Stock Issued	Common Stock Amount	Additional Paid In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income/(Loss)	Total Shareholders' Equity
Balances at December 31, 2017	**33,868,252**	**$ 339**	**$ 47,494**	**$ 7,176**	**$ (20,910)**	**$ 1,004**	**$ 35,103**
Adoption of Accounting Standard	-	-	-	345	-	-	345
Adjusted Opening Equity	**33,868,252**	**$ 339**	**$ 47,494**	**$ 7,521**	**$ (20,910)**	**$ 1,004**	**$ 35,448**
Net Income/(Loss)	-	-	-	35	-	-	35
Issuance of Shares in Connection with Stock Options Exercised	300,000	3	285	-	-	-	288
Issuance of Restricted Stock	225,000	2	(2)	-	-	-	-
Forfeiture of Shares Issued in Connection with CommAgility acquisition	-	-	-	-	(3,599)	-	(3,599)
Share-based Compensation Expense	-	-	702	-	-	-	702
Cumulative Translation Adjustment	-	-	-	-	-	(892)	(892)
Balances at December 31, 2018	**34,393,252**	**$ 344**	**$ 48,479**	**$ 7,556**	**$ (24,509)**	**$ 112**	**$ 31,982**
Net Income/(Loss)	-	-	-	(414)	-	-	(414)
Issuance of Restricted Stock	95,000	1	(1)	-	-	-	-
Share-based Compensation Expense	-	-	584	-	-	-	584
Cumulative Translation Adjustment	-	-	-	-	-	539	539
Balances at December 31, 2019	**34,488,252**	**$ 345**	**$ 49,062**	**$ 7,142**	**$ (24,509)**	**$ 651**	**$ 32,691**

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

Wireless Telecom Group, Inc.
(In thousands)

	For the Twelve Months Ended December 31 2019	2018
CASH FLOWS PROVIDED BY OPERATING ACTIVITIES		
Net Income/(Loss)	$ (414)	$ 35
Adjustments to reconcile net income/(loss) to net cash provided by operating activities:		
Depreciation and Amortization	2,151	2,305
Amortization of Debt Issuance Fees	63	78
Share-based Compensation Expense	584	702
Non Cash Lease Expense	(24)	11
Deferred Income Taxes	(551)	233
Provision for Doubtful Accounts	25	-
Inventory Reserves	103	359
Changes in Assets and Liabilities:		
Accounts Receivable	2,465	231
Inventories	(502)	(751)
Prepaid Expenses and Other Assets	42	(850)
Accounts Payable	(1,055)	(735)
Payment of Contingent Consideration	(772)	-
Accrued Expenses and Other Liabilities	(2,035)	2,372
Net Cash Provided by Operating Activities	80	3,990
CASH FLOWS (USED) BY INVESTING ACTIVITIES		
Capital Expenditures	(392)	(853)
Acquisition of Business, Net of Cash Acquired	(426)	(805)
Net Cash (Used) by Investing Activities	(818)	(1,658)
CASH FLOWS PROVIDED/(USED) BY FINANCING ACTIVITIES		
Revolver Borrowings	36,544	37,695
Revolver Repayments	(35,712)	(37,355)
Term Loan Repayments	(152)	(152)
Debt Issuance Fees	(110)	-
Payment of Contingent Consideration	(782)	-
Proceeds from Exercise of Stock Options	-	288
Net Cash Provided/(Used) by Financing Activities	(212)	476
Effect of Exchange Rate Changes on Cash and Cash Equivalents	180	(251)
NET INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS	(770)	2,557
Cash and Cash Equivalents, at Beginning of Period	5,015	2,458
CASH AND CASH EQUIVALENTS, AT END OF PERIOD	$ 4,245	$ 5,015
SUPPLEMENTAL INFORMATION:		
Cash Paid During the Period for Interest	$ 185	$ 176
Cash Paid During the Period for Income Taxes	$ 108	$ 41

The accompanying notes are an integral part of these consolidated financial statements.

NOTE 1 - DESCRIPTION OF COMPANY AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

Organization and Basis of Presentation

Wireless Telecom Group, Inc., a New Jersey corporation, together with its subsidiaries (“we”, “us”, “our” or the “Company”), is a global designer and manufacturer of advanced RF, microwave and millimeter wave components, modules, systems and instruments and currently markets its products and services worldwide under the Boonton, Microlab, Noisecom and CommAgility brands. Serving the wireless, telecommunication, satellite, military, aerospace, and semiconductor industries, Wireless Telecom Group products enable innovation across a wide range of traditional and emerging wireless technologies. With a unique set of high-performance products including peak power meters, signal analyzers, signal processing modules, long term evolution (“LTE”) physical layer (“PHY”) and stack software, power splitters and combiners, global positioning system (“GPS”) repeaters, public safety monitors, noise sources, and programmable noise generators, Wireless Telecom Group supports the development, testing, and deployment of wireless technologies around the globe. The consolidated financial statements include the accounts of Wireless Telecom Group, Inc., doing business as, and operating under the trade name, Noise Com, Inc. (“Noisecom”), and its wholly owned subsidiaries including Boonton Electronics Corporation (“Boonton”), Microlab/FXR (“Microlab”), Wireless Telecommunications Ltd. and CommAgility Limited (“CommAgility”).

The accompanying Consolidated Financial Statements include the accounts of the Company and its wholly owned subsidiaries. The Consolidated Financial Statements have been prepared using accounting principles generally accepted in the United States (“U.S. GAAP”). All intercompany accounts and transactions have been eliminated in consolidation.

The Company presents its operations in three reportable segments: (1) Network Solutions, (2) Test and Measurement and (3) Embedded Solutions. The Network Solutions segment is comprised of the operations of Microlab. The Test and Measurement segment is comprised of the operations of Boonton and Noisecom. The Embedded Solutions segment is comprised of the operations of CommAgility.

Use of Estimates

The accompanying financial statements have been prepared in accordance with U.S. GAAP, which requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Accordingly, actual results could differ from those estimates. The most significant estimates and assumptions include management’s analysis in support of inventory valuation, accounts receivable valuation, valuation of deferred tax assets, returns reserves, warranty accruals, intangible assets, estimated fair values of stock options and vesting periods of performance-based stock options and restricted stock.

Concentrations of Credit Risk, Purchases and Fair Value

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and accounts receivable.

Credit evaluations are performed on customers requiring credit over a certain amount. Credit risk is mitigated to a lesser extent through collateral such as letters of credit, bank guarantees or payment terms like cash in advance.

For the years ended December 31, 2019 and 2018 one customer, from the Embedded Solutions segment, accounted for 24.8% and 22.0% of the Company’s total consolidated revenues, respectively. At December 31, 2019, one customer exceeded 10% of consolidated gross accounts receivable at 12.9%. At December 31, 2018 one customer exceeded 10% of consolidated gross accounts receivable at 32.1%.

For the year ended December 31, 2019, three suppliers comprised or exceeded 10% of consolidated inventory purchases at 18%, 14%, and 10% respectively. For the year ended December 31, 2018 two suppliers comprised or exceeded 10% of consolidated inventory purchases at 15% and 13%, respectively.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with maturities of three months or less at the date of purchase to be cash equivalents. Cash and cash equivalents consist of operating accounts.

Accounts Receivable and Allowance for Doubtful Accounts

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. Estimated allowances for doubtful accounts are reviewed periodically taking into account the customer's recent payment history, the customer's current financial statements and other information regarding the customer's credit worthiness. Account balances are charged off against the allowance when it is determined the receivable will not be recovered.

Inventories

Inventories are stated at the lower of cost (average cost) or net realizable value. Net realizable value is based upon an estimated average selling price reduced by estimated costs of completion, disposal and transportation. Reductions in inventory valuation are included in cost of revenues in the accompanying Consolidated Statements of Operations and Comprehensive Loss. Finished goods and work-in-process include material, labor and overhead expenses.

The Company reviews inventory for excess and obsolescence based on best estimates of future demand, product lifecycle status and product development plans. The Company uses historical information along with these future estimates to reduce the inventory cost basis. Subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis.

Inventory carrying value is net of inventory reserves of approximately $1.0 million as of December 31, 2019 and $1.9 million as of December 31, 2018.

Inventories consist of (in thousands):	December 31, 2019	December 31, 2018
Raw materials	$ 4,023	$ 3,248
Work-in-process	406	557
Finished goods	2,896	3,079
	$ 7,325	$ 6,884

Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets generally consist of income tax receivables, contract assets, prepaid insurance, prepaid maintenance agreements and the short term portion of debt issuance costs. The income tax receivable balance included in prepaid and other current assets was $1.1 million as of December 31, 2019 as compared to a balance of $0.8 million as of December 31, 2018.

Property, Plant and Equipment

Property, plant and equipment are reflected at cost, less accumulated depreciation. Depreciation and amortization are provided on a straight-line basis over the estimated useful lives of the assets. The estimated useful lives for the property, plant and equipment are:

Machinery and computer equipment	3-8 years
Furniture and fixtures	5-7 years
Transportation equipment	4 years

Leasehold improvements are amortized over the shorter of the remaining term of the lease or the estimated economic life of the improvement. Repairs and maintenance are charged to operations as incurred; renewals and betterments are capitalized.

Goodwill

Goodwill represents the excess of the aggregate purchase price over the fair value of the net assets acquired in a purchase business combination. Goodwill is evaluated for impairment annually by first performing a qualitative evaluation of events and circumstances impacting the reporting unit to determine the likelihood of goodwill impairment. Based on that qualitative evaluation, if we determine it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, no further evaluation is necessary. Otherwise we perform a quantitative impairment test.

As of December 31, 2019 the Company’s consolidated goodwill balance of $10.1 million is comprised of $1.4 million related to the Microlab reporting unit and $8.7 million related to the CommAgility reporting unit. The Company performed a qualitative assessment in the fourth quarter of 2019 of each reporting unit. The qualitative assessment of Microlab did not indicate any impairment of goodwill. As a result of declining future demand of the CommAgility’s signal processing hardware and the uncertainty associated with new product revenues to offset the signal processing hardware sale decline, the Company performed a quantitative impairment test of the goodwill of the CommAgility reporting unit.

For goodwill impairment testing using the quantitative approach, the Company estimates the fair value of the selected reporting unit primarily through the use of a discounted cash flow model based on our best estimate of amounts and timing of future revenues and cash flows and our most recent business and strategic plans, and compares the estimated fair value to the carrying value of the reporting unit, including goodwill. If the fair value of the reporting unit exceeds the carrying value, no impairment charge is recorded. If the carrying value of the reporting unit exceeds the fair value an impairment charge is recorded to goodwill in the amount by which carrying value exceeds fair value. The discounted cash flow model requires judgmental assumptions about projected revenue growth, future operating margins, discount rates and terminal values over a multi-year period. There are inherent uncertainties related to these assumptions and management’s judgment in applying them to the analysis of goodwill impairment. While the Company believes it has made reasonable estimates and assumptions to calculate the fair value of its reporting units, it is possible a material change could occur. If actual results are not consistent with management’s estimates and assumptions, goodwill may be overstated and a charge would need to be taken against net earnings.

Changes in our projections used in the discounted cash flow model could affect the estimated fair value of the Company’s reporting unit and could result in a goodwill impairment charge in a future period. In order to evaluate the sensitivity of the fair value calculations used in the quantitative goodwill impairment test, the Company applied a hypothetical 10% decrease to the fair value of the CommAgility reporting unit and compared those values to the carrying value. Based on this sensitivity analysis, the Company did not identify any goodwill impairment. Due to the many variables inherent in the estimation of a reporting unit’s fair value and the relative size of our recorded goodwill, differences in assumptions may have a material effect on the results of our impairment analysis.

As of December 31, 2018 the Company’s consolidated goodwill balance of $9.8 million was comprised of $1.4 million related to the Microlab reporting unit and $8.4 million related to the CommAgility reporting unit. Management’s qualitative assessment performed in the fourth quarters of 2018 did not indicate any impairment of goodwill.

Intangible and Long-lived Assets

Intangible assets include patents, non-competition agreements, customer relationships and trademarks. Intangible assets with finite lives are amortized using the straight-line method over the estimated economic lives of the assets, which range from three to five years. Long-lived assets, including intangible assets with finite lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability is based on an estimate of undiscounted future cash flows resulting from the use of the asset and its eventual disposition. Measurement of an impairment loss for long-lived assets that management expects to hold and use is based on the estimated fair value of the asset. Long-lived assets to be disposed of are reported at the lower of carrying amount or estimated fair value less costs to sell. The estimated useful lives of intangible and long-lived assets are based on many factors including assumptions regarding the effects of obsolescence, demand, competition and other economic factors, expectations regarding the future use of the asset, and our historical experience with similar assets. The assumptions used to determine the estimated useful lives could change due to numerous factors including product demand, market conditions, technological developments, economic conditions and competition. Intangible assets determined to have indefinite useful lives are not amortized but are tested for impairment annually and more frequently if events occur or circumstances change that indicate an asset may be impaired.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance establishes a three-tiered hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value:

Level 1 - Quoted prices in active markets for identical assets or liabilities.

Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The categorization of a financial instrument within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement.

The carrying amounts of the Company’s financial instruments, including cash, accounts receivable, accounts payable and accrued liabilities, approximate fair value due to their relatively short maturities. The Company’s term loan and revolving credit facility bear interest at a variable interest rate plus an applicable margin and, therefore, carrying amount approximates fair value.

Foreign Currency Translation

Assets and liabilities of non-U.S. subsidiaries that operate in a local currency environment, where the local currency is the functional currency, are translated from foreign currencies into U.S. dollars at period-end exchange rates while income and expenses are translated at the weighted average spot rate for the periods presented. Translation gains or losses related to net assets located outside the U.S. are shown as a component of accumulated other comprehensive income in the Consolidated Statements of Changes in Shareholders’ Equity. Gains and losses resulting from foreign currency transactions, which are denominated in currencies other than the Company’s functional currency, are included in the Consolidated Statements of Operations and Comprehensive Loss. Foreign exchange transaction losses were not material in fiscal 2019 and were $0.1 million in 2018.

Other Comprehensive Income (Loss)

Other comprehensive income (loss) is recorded directly to a separate section of shareholders’ equity in accumulated other comprehensive income and includes unrealized gains and losses excluded from net income/(loss). These unrealized gains and losses consist of changes in foreign currency translation.

Research and Development Costs

Research and development costs are charged to operations when incurred. The amounts charged to operations for the years ended December 31, 2019 and 2018 were $5.9 million and $4.9 million, respectively.

Advertising Costs

Advertising expenses are charged to operations during the year in which they are incurred and aggregated $0.1 million for the years ended December 31, 2019 and 2018.

Stock-Based Compensation

The Company follows the provisions of Accounting Standards Codification ("ASC") 718, "Compensation – Stock Compensation" which requires that compensation expense be recognized, based on the fair value of the stock awards. The fair value of the stock awards is equal to the fair value of the Company's stock on the date of grant. The fair value of options at the date of grant are estimated using the Black-Scholes option pricing model. When performance-based options are granted, the Company takes into consideration guidance under ASC 718 and SEC Staff Accounting Bulletin No. 107 (SAB 107) when determining assumptions. The expected option life is derived from assumed exercise rates based upon historical exercise patterns and represents the period of time that options granted are expected to be outstanding. The expected volatility is based upon historical volatility of our shares using daily price observations over an observation period that approximates the expected life of the options. The risk-free rate is based on the U.S. Treasury yield curve rate in effect at the time of grant for periods similar to the expected option life. The Company accounts for forfeitures when they occur.

Management estimates are necessary in determining compensation expense for stock options with performance-based vesting criteria. Compensation expense for this type of stock-based award is recognized over the period from the date the performance conditions are determined to be probable of occurring through the implicit service period, which is the date the applicable conditions are expected to be met. If the performance conditions are not considered probable of being achieved, no expense is recognized until such time as the performance conditions are considered probable of being met, if ever. If the award is forfeited because the performance condition is not satisfied, previously recognized compensation cost is reversed. Management evaluates performance conditions on a quarterly basis.

Income Taxes

The Company records deferred taxes in accordance with ASC 740, "Accounting for Income Taxes". This ASC requires recognition of deferred tax assets and liabilities for temporary differences between tax basis of assets and liabilities and the amounts at which they are carried in the financial statements, based upon the enacted rates in effect for the year in which the differences are expected to reverse. The Company establishes a valuation allowance when necessary to reduce deferred tax assets to the amount expected to be realized.

The Company periodically assesses the value of its deferred tax asset, a majority of which has been generated by a history of net operating losses and determines the necessity for a valuation allowance. The Company evaluates which portion, if any, will more likely than not be realized by offsetting future taxable income, taking into consideration any limitations that may exist on its use of its net operating loss carry-forwards.

Under ASC 740, the Company must recognize and disclose uncertain tax positions only if it is more-likely-than-not the tax position will be sustained on examination by the taxing authority, based on the technical merits of the position. The amounts recognized in the financial statements attributable to such position, if any, are recorded if there is a greater than 50% likelihood of being realized upon the ultimate resolution of the position. Based on the evaluations noted above, the Company has concluded that there are no significant uncertain tax positions requiring recognition or disclosure in its consolidated financial statements.

Earnings (Loss) Per Common Share

Basic earnings (loss) per share is calculated by dividing net income (loss) available to common shareholders by the weighted average number of shares of common stock outstanding during the period. Diluted earnings (loss) per share is calculated by dividing net income (loss) available to common shareholders by the weighted average number of common shares outstanding for the period and, when dilutive, potential shares from stock options using the treasury stock method, the weighted average number of unvested restricted shares and the weighted-average number of restricted stock units outstanding for the period. Shares from stock options are included in the diluted earnings per share calculation only when options exercise prices are lower than the average market value of the common shares for the period presented. In periods with a net loss, the basic loss per share equals the diluted loss per share as all common stock equivalents are excluded from the per share calculation because they are anti-dilutive. In accordance with ASC 260, "Earnings Per Share", the following table reconciles basic shares outstanding to fully diluted shares outstanding.

	For the Years Ended December 31,	
	2019	2018

Weighted average common shares outstanding	21,110,632	20,858,298
Potentially dilutive equity awards	522,996	707,492
Weighted average common shares outstanding, assuming dilution	21,633,628	21,565,790

The weighted average number of options to purchase common stock not included in diluted loss per share because the effects are anti-dilutive, or the performance condition was not met in 2019 was 1,324,548. The weighted average number of options to purchase common stock not included in diluted loss per share in 2018, because the effects are anti-dilutive or the performance condition was not met, was 285,000.

Recent Accounting Pronouncements Adopted in 2019

In February 2016, the FASB issued Accounting Standards Update (“ASU”) 2016-02, *Leases (Topic 842)*, which created new accounting and reporting guidelines for leasing arrangements. The new guidance requires organizations that lease assets to recognize assets and liabilities on the balance sheet related to the rights and obligations created by those leases, regardless of whether they are classified as finance or operating leases. Consistent with current guidance, the recognition, measurement, and presentation of expenses and cash flows arising from a lease primarily will depend on its classification as a finance or operating lease. The guidance also requires new disclosures to help financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases.

The Company adopted the requirements of the new standard effective January 1, 2019 using the modified retrospective transition method, which applies the provisions of the standard at the effective date without adjustment to the comparative periods presented. The Company adopted the following practical expedients and elected the following accounting policies related to this standard:

- Carry forward of historical lease classifications and accounting treatment;
- Short-term lease accounting policy election allowing lessees to not recognize right-of-use assets and liabilities for leases with a term of 12 months or less; and
- The option to not separate lease and non-lease components for certain equipment lease categories such as office printers and copiers.

Adoption of this standard resulted in the recognition of operating lease right-of-use assets and corresponding lease liabilities of $1.9 million on the consolidated balance sheet as of January 1, 2019. The standard did not materially impact operating results or liquidity. Disclosures related to the amount, timing and uncertainty of cash flows arising from leases are included in Note 2.

On June 20, 2018, the FASB issued ASU 2018-07, *Compensation - Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting.* ASU 2018-07 is intended to reduce cost and complexity and to improve financial reporting for share-based payments issued to nonemployees. This ASU expands the scope of ASC Topic 718, *Compensation - Stock Compensation*, which currently only includes share-based payments issued to employees, to also include share-based payments issued to nonemployees for goods and services. Consequently, the accounting for share-based payments to nonemployees and employees will be substantially aligned. ASU 2018-07 supersedes ASC *Subtopic 505-50, Equity - Equity-Based Payments to Non-Employees*. The amendments in this ASU are effective for public companies for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. The Company adopted this standard on January 1, 2019 and it did not have an impact on our financial statements as we did not issue share-based awards to nonemployees during the year.

In January, 2017, FASB issued ASU 2017-04, *"Intangibles – Goodwill and Other (Topic 350) Simplifying the Test for Goodwill Impairment."* ASU 2017-04 removes the requirement to perform a hypothetical purchase price allocation to measure goodwill impairment. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. This pronouncement is effective for the Company's 2020 calendar year, with early adoption permitted. The Company has elected to adopt this standard effective with the December 31 2019, financials and its valuation of the CommAgility and Microlab goodwill assessment in the fourth quarter of fiscal 2019.

Recent Accounting Pronouncements Not Yet Adopted

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326)*. ASU 2016-13 changes the impairment model for most financial assets and will require the use of an "expected loss" model for instruments measured as amortized cost. This pronouncement is effective for small reporting companies for fiscal years, and for interim periods within those fiscal years, beginning after December 15, 2022. The Company plans to adopt the standard effective January 1, 2023. We do not expect the adoption of this standard to have a material impact on our consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement, Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement (Topic 820)*. ASU 2018-13 eliminates, modifies and adds disclosure requirements for fair value measurements. This pronouncement is effective for fiscal years, and for interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. We are currently in the process of evaluating the effects of this pronouncement on our consolidated financial statements

In August 2018, the FASB issued ASU 2018-15, *"Intangibles – Goodwill and Other – Internal-Use Software, Customers Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract."* ASU 2018-15 aligns the requirements for capitalizing implementation costs in cloud computing arrangements with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. This pronouncement is effective for the Company's 2023 calendar year, with early adoption permitted. The Company is in the process of evaluating the impact of ASU 2018-15 on its consolidated financial statements.

NOTE 2 - LEASES

The Company's lease agreements consist of building leases for its operating locations and office equipment leases for printers and copiers with lease terms that range from less than 12 months to 8 years. At inception, the Company determines if an arrangement contains a lease and whether that lease meets the classification criteria of a finance or operating lease. The Company's leases for office equipment such as printers and copiers contain lease and non-lease components (i.e. maintenance). The Company accounts for lease and non-lease components of office equipment as a single lease component.

All of the Company's leases are operating leases and are presented as right of use lease asset, short term lease liability and long term lease liability on the consolidated balance sheet as of December 31, 2019. These assets and liabilities are recognized at the commencement date based on the present value of remaining lease payments over the lease term using the Company's incremental borrowing rate. Short-term leases, which have an initial term of 12 months or less, are not recorded on the balance sheet.

Lease expense is recognized on a straight-line basis over the lease term and is included in cost of revenues and general and administrative expenses on the consolidated statement of operations and comprehensive income/(loss).

An initial right-of-use asset of $1.9 million was recognized as a non-cash asset addition with the adoption of the new lease accounting standard. Subsequent to adoption of the new standard there were no new right-of-use assets recognized during the twelve months ended December 31, 2019. Cash paid for amounts included in the present value of operating lease liabilities was $0.5 million during the twelve months ended December 31, 2019 and is included in operating cash flows.

Operating lease costs were $0.8 million during the twelve months ended December 2019.

The following table presents information about the amount and timing of cash flows arising from the Company's operating leases as of December 31, 2019.

(in thousands)	December 31, 2019
Maturity of Lease Liabilities	
2020	$ 511
2021	474
2022	488
2023	123
Thereafter	-
Total Undiscounted operating lease payments	1,596
Less: imputed interest	(138)
Present Value of operating lease liabilities	$ 1,458
Other information	
Weighted-average remaining lease term (months)	38
Weighted-average discount rate for operating leases	5.76%

Total annual commitments under non-cancelable lease agreements as of December 31, 2018 under the previous accounting guidance were as follows:

2019	$ 539
2020	510
2021	474
2022	488
2023	123
Total	$ 2,134

NOTE 3 – REVENUE

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for promised goods or services. The Company's performance obligations are satisfied either over time or at a point in time. Revenue from performance obligations that transferred at a point in time accounted for approximately 99% and 95% of the Company's total revenue for the twelve months ended December 31, 2019 and 2018, respectively.

Nature of Products and Services

Hardware

The Company generally has one performance obligation in its arrangements involving the sales of radio frequency solutions in the Network Solutions segment, digital signal processing hardware in the Embedded Solutions segment and noise generators and components and power meter and analyzers in the Test and Measurement segment. When the terms of a contract include the transfer of multiple products, each distinct product is identified as a separate performance obligation. Generally, satisfaction occurs when control of the promised goods is transferred to the customer in exchange for consideration in an amount for which we expect to be entitled. Generally, control is transferred when legal title of the asset moves from the Company to the customer. We sell our products to a customer based on a purchase order, and the shipping terms per each individual order are primarily used to satisfy the single performance obligation. However, in order to determine control has transferred to the customer, the Company also considers:

- when the Company has a present right to payment for the asset
- when the Company has transferred physical possession of the asset to the customer
- when the customer has the significant risks and rewards of ownership of the asset
- when the customer has accepted the asset

Software

Arrangements involving licenses of software in the Embedded Solutions segment may involve multiple performance obligations, most notably subsequent releases of the software. The Company has concluded that each software release in a multiple deliverable arrangement in the Embedded Solutions segment is a distinct performance obligation and, accordingly, transaction price is allocated to each release when the customer obtains control of the software.

Performance obligations that are not distinct at contract inception are combined. Specifically, with the Company's sales of software, contracts that include customization may result in the combination of the customization services with the license as one distinct performance obligation and recognized over time. The duration of these performance obligations are typically one year or less.

Services

Arrangements involving calibration and repair services in the Company's Test and Measurement segment are generally considered a single performance obligation and are recognized as the services are rendered.

Shipping and Handling

Shipping and handling activities performed after the customer obtains control are accounted for as fulfillment activities and recognized as cost of revenues.

Significant Judgments

For the Company's more complex software and services arrangements significant judgment is required in determining whether licenses and services are distinct performance obligations that should be accounted for separately, or, are not distinct, and thus accounted for together. Further, in cases where we determine that performance obligations should be accounted for separately, judgment is required to determine the standalone selling price for each distinct performance obligation.

Certain of the Company shipments include a limited return right. In accordance with Topic 606 the Company recognizes revenue net of expected returns.

Contract Balances

The timing of revenue recognition may differ from the timing of invoicing to customers and these timing differences result in contract assets or contract liabilities (deferred revenue) on the Company's Consolidated Balance Sheet. The Company records a contract asset when revenue is recognized prior to invoicing, or deferred revenue when revenue is recognized subsequent to invoicing. Contract assets are recorded in prepaid expenses and other current assets and are $0.1 million and $0.3 million as of December 31, 2019 and 2018, respectively. Deferred revenue is $42,000 and $0.1 million as of December 31, 2019 and 2018, respectively.

Disaggregated Revenue

We disaggregate our revenue from contracts with customers by product family and geographic location for each of our segments as we believe it best depicts how the nature, timing and uncertainty of our revenue and cash flows are affected by economic factors. See details in the tables below (in thousands).

	Twelve Months Ended December 31, 2019			
	Network Solutions	Test and Measurement	Embedded Solutions	Total
Total Net Revenues by Revenue Type				
Passive and Active RF Solutions	$ 21,830	$ -	$ -	$ 21,830
Noise Generators and Components	-	6,198	-	6,198
Power Meters and Analyzers	-	6,109	-	6,109
Signal Processing Hardware	-	-	13,013	13,013
Software Licenses	-	-	14	14
Services	-	1,259	498	1,757
Total Net Revenue	**$ 21,830**	**$ 13,566**	**$ 13,525**	**$ 48,921**
Total Net Revenues by Geographic Areas				
Americas	$ 19,318	$ 9,522	$ 1,321	$ 30,161
EMEA	2,241	2,105	12,154	16,500
APAC	271	1,939	50	2,260
Total Net Revenue	**$ 21,830**	**$ 13,566**	**$ 13,525**	**$ 48,921**

	Twelve Months Ended December 31, 2018			
	Network Solutions	Test and Measurement	Embedded Solutions	Total
Total Net Revenues by Revenue Type				
Passive and Active RF Solutions	$ 22,275	$ -	$ -	$ 22,275
Noise Generators and Components	-	6,130	-	6,130
Power Meters and Analyzers	-	6,769	-	6,769
Signal Processing Hardware	-	-	12,746	12,746
Software Licenses	-	-	704	704
Services	-	1,313	2,851	4,164
Total Net Revenue	**$ 22,275**	**$ 14,212**	**$ 16,301**	**$ 52,788**
Total Net Revenues by Geographic Areas				
Americas	$ 18,871	$ 10,223	$ 3,755	$ 32,849
EMEA	2,591	1,659	12,019	16,269
APAC	813	2,330	527	3,670
Total Net Revenue	**$ 22,275**	**$ 14,212**	**$ 16,301**	**$ 52,788**

NOTE 4 - DEBT

Debt consists of the following (in thousands):

		December 31, 2019
Revolver at LIBOR Plus Margin	$	2,354
Term Loan at LIBOR Plus Margin		342
Total Debt		2,696
Debt Maturing within one year		(2,696)
Non-current portion of long term debt	$	-

The Company entered into a Credit Facility with Bank of America, N.A. (the “Lender”) on February 16, 2017 (the “Credit Facility”), which provided for a term loan in the aggregate principal amount of $0.8 million (the “Term Loan”) and an asset based revolving loan (the “Revolver”), which is subject to a Borrowing Base Calculation (as defined in the Credit Facility) of up to a maximum availability of $9.0 million (“Revolver Commitment Amount”). The borrowing base is calculated as 85% of eligible accounts receivable and inventory, as defined, subject to certain caps and limits. The borrowing base is calculated on a monthly basis. The proceeds of the Term Loan and Revolver were used to finance the acquisition of CommAgility.

In connection with the issuance of the Credit Facility, the Company paid lender and legal fees of $0.2 million which were primarily related to the Revolver and are capitalized and presented as other current and non-current assets in the Consolidated Balance Sheets. These costs are recognized as additional interest expense over the term of the related debt instrument using the straight line method which approximates the effective interest method.

The Company must repay the Term Loan in installments of $38,000 per quarter due on the first day of each fiscal quarter beginning April 1, 2017 and continuing until the Term Loan maturity date, on which the remaining balance is due in a final installment. The future principal payments under the Term Loan are $0.3 million in 2020. The Term Loan and Revolver were both scheduled to mature on November 16, 2019. On February 26, 2019 the Company entered into Amendment No. 3 to the Credit Facility which extends the termination date of the Revolver from November 16, 2019 to March 31, 2020 (See Note 15). On November 8, 2019 the Company entered into Amendment No. 4 to the Credit Facility which extends the maturity date of the Term Loan to coincide with the extension of the Revolver at March 31, 2020, and then on February 7, 2020, entered into Amendment No. 5 (see Note 15 Subsequent Event), which, inter alia, extended the maturity date of the Revolver to March 31, 2023.

The Term Loan and Revolver bear interest at the LIBOR rate plus a margin. The margin on the outstanding balance of the Company’s Term Loan and Revolver were fixed at 3.50% and 3.00% per annum, respectively, through September 30, 2017. Thereafter, the margins were subject to increase or decrease by Lender on the first day of each of the Borrowers’ fiscal quarters based upon the Fixed Charge Coverage Ratio (as defined in the Credit Facility) as of the most recently ended fiscal quarter falling into three levels. If the Company’s Fixed Charge Coverage Ratio is greater than or equal to 1.25 to 1.00, a margin of 3.25% and 2.75%, respectively, is added to LIBOR rate with a step up to 3.50% and 3.00%, respectively, if the ratio is greater than or equal 1.00 to 1.00 but less than 1.25 to 1.00 and another step up to 3.75% and 3.25%, respectively, if the ratio is less than 1.00 to 1.00. The Company is also required to pay a commitment fee on the unused commitments under the Revolver at a rate equal to 0.50% per annum and early termination fee of (a) 2% of the Revolver Commitment Amount and Term Loan if termination occurs before the first anniversary of the Credit Facility or (b) 1% of the Revolver Commitment Amount and Term Loan if termination occurs after the first anniversary of the Credit Facility but before the second anniversary of the Credit Facility. The Company’s interest rate plus margin as of December 31, 2019 was 4.63% and 5.13% for the Revolver and Term Loan, respectively. The Company’s interest rate plus margin as of December 31, 2018 was 5.38% and 5.88% for the Revolver and Term Loan, respectively.

The Credit Facility is secured by liens on substantially all of the Company’s and its domestic subsidiaries’ assets including a pledge of 66 1/3% of the equity interests in the Company’s Foreign Subsidiaries (as defined in the Credit Facility). The Credit Facility contains customary affirmative and negative covenants for a transaction of this type, including, among others, the provision of annual, quarterly and monthly financial statements and compliance certificates, maintenance of property, insurance, compliance with laws and environmental matters, restrictions on incurrence of indebtedness, granting of liens, making investments and acquisitions, paying dividends, entering into affiliate transactions and asset sales. Events of default under the Credit Facility include but are not limited to: failure to pay obligations when due, breach or failure of any covenant, insolvency or bankruptcy, materially misleading representations or warranties, occurrence of a Change in Control (as defined) or occurrence of conditions that have a Material Adverse Effect (as defined).

As of December 31, 2019, and the date hereof, the Company is in compliance with the covenants of the Credit Facility.

NOTE 5 - GOODWILL AND INTANGIBLE ASSETS

Goodwill consists of the following (in thousands):

	Network Solutions	Embedded Solutions	Total
Balance as of January 1, 2018	**$ 1,351**	**$ 8,909**	**$ 10,260**
Foreign Currency Translation	-	(482)	(482)
Balance as of December 31, 2018	**1,351**	**8,427**	**9,778**
Foreign Currency Translation	-	291	291
Balance as of December 31, 2019	**$ 1,351**	**$ 8,718**	**$ 10,069**

Intangible assets consist of the following (in thousands):

	December 31, 2019			
	Gross Carrying Amount	Accumulated Amortization	Foreign Exchange Translation	Net Carrying Amount
Customer Relationships	$ 2,766	$ (1,644)	$ 113	$ 1,235
Patents	615	(365)	25	275
Non-Compete Agreements	1,107	(1,101)	43	49
Tradename	629	-	31	660
Total	$ 5,117	$ (3,110)	$ 212	$ 2,219

	December 31, 2018			
	Gross Carrying Amount	Accumulated Amortization	Foreign Exchange Translation	Net Carrying Amount
Customer Relationships	$ 2,766	$ (1,082)	$ 71	$ 1,755
Patents	615	(240)	15	390
Non-Compete Agreements	1,107	(727)	41	421
Tradename	629	-	11	640
Total	$ 5,117	$ (2,049)	$ 138	$ 3,206

Amortization of acquired intangible assets was $1.1 million for each of the twelve months ended December 31, 2019 and 2018. Amortization of acquired intangible assets is included as part of general and administrative expenses in the accompanying consolidated statements of operations and comprehensive loss.

The estimated future amortization expense related to intangible assets is as follows as of December 31, 2019 (in thousands):

2020	$	759
2021		710
2022		90
Total	$	1,559

NOTE 6 - PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment, consist of the following as of December 31 (in thousands):

		2019		2018
Machinery & Equipment	$	8,662	$	7,928
Furniture & Fixtures		461		440
Transportation Equipment		5		2
Leasehold Improvements		1,326		1,217
Gross property, plant and equipment		10,454		9,587
Less: accumulated depreciation		8,307		7,009
Net property, plant and equipment	$	2,147	$	2,578

Depreciation expense of $0.8 million and $1.0 million was recorded for the years ended December 31, 2019 and 2018, respectively.

NOTE 7 - OTHER ASSETS

Other assets consist of the following as of December 31 (in thousands):

		2019		2018
Deferred S3 Costs	$	255	$	255
Tax Receivable – Long Term		230		-
Product demo assets		128		351
Long term debt issuance		91		-
Deferred cost		82		96
Security deposit		50		50
Other		38		35
Total	$	874	$	787

Product demo assets are net of accumulated amortization expense of $0.3 million and $1.2 million as of December 31, 2019 and 2018, respectively. Amortization expense related to demo assets was $0.3 million and $0.2 million in 2019 and 2018, respectively.

NOTE 8 - ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other current liabilities consist of the following as of December 31 (in thousands):

	2019	2018
Professional fees	$ 464	$ 233
Commissions	430	444
Sales and use and VAT tax	355	374
Goods received not invoiced	346	435
Payroll and related taxes	308	755
Return Reserve	199	199
Warranty Reserve	160	90
Bonus	126	800
Severance	102	-
Other	167	459
Contingent Consideration Liability	-	1,442
Deferred Purchase Price	-	852
Total	$ 2,657	$ 6,083

NOTE 9 - ACCOUNTING FOR STOCK BASED COMPENSATION

The Company follows the provisions of ASC 718. The Company’s results for the years ended December 31, 2019 and December 31, 2018 include stock based compensation expense totaling $0.6 million and $0.7 million, respectively. Such amounts have been included in the consolidated statement of operations and comprehensive loss within operating expenses.

Incentive Compensation Plan

In 2012, the Company’s Board of Directors and shareholders approved the 2012 Incentive Compensation Plan (the “Initial 2012 Plan”), which provides for the grant of equity, including restricted stock awards, restricted stock units, non-qualified stock options and incentive stock options in compliance with the Internal Revenue Code of 1986, as amended, to employees, officers, directors, consultants and advisors of the Company who are expected to contribute to the Company’s future growth and success. When originally approved, the Initial 2012 Plan provided for the grant of awards relating to 2 million shares of common stock, plus those shares subject to awards previously issued under the Company’s 2000 Stock Option Plan that expire, are canceled or are terminated after adoption of the Initial 2012 Plan without having been exercised in full and would have been available for subsequent grants under the 2000 Stock Option Plan. In June 2014, the Company’s shareholders approved the Amended and Restated 2012 Incentive Compensation Plan (the “2012 Plan”) allowing for an additional 1.6 million shares of the Company’s common stock to be available for future grants under the 2012 Plan. The 2012 Plan provides that if awards are forfeited, expire or otherwise terminate without issuance of the shares underlying the awards, or if the award does not result in issuance of all or part of the shares underlying the award, the unissued shares are again available for awards under the 2012 Plan. As a result of certain award forfeitures and cancellations, as of December 31, 2019, there are approximately 1.7 million shares available for issuance under the 2012 Plan.

All service-based (time vesting) options granted have ten-year terms from the date of grant and typically vest annually and become fully exercisable after a maximum of five years. However, vesting conditions are determined on a grant by grant basis. Performance-based options granted have ten-year terms and vest and become fully exercisable when determinable performance targets are achieved. Performance targets are approved by the Company’s compensation committee of the Board of Directors. Under the 2012 Plan, options may be granted to purchase shares of the Company’s common stock exercisable only at prices equal to or above the fair market value on the date of the grant.

The following summarizes the components of share-based compensation expense for the years ending December 31 (in thousands):

	2019	2018
Service Based Restricted Stock Awards	$ 278	$ 172
Service Based Restricted Stock Units	245	175
Performance Based Stock Options	(90)	50
Service Based Stock Options	151	305
	$ 584	$ 702

As of December 31, 2019, $0.1 million of unrecognized compensation costs related to unvested stock options is expected to be recognized over a remaining weighted average period of 1.8 years, $0.2 million of unrecognized compensation costs related to unvested restricted shares is expected to be recognized over a remaining weighted average period of 1.6 years and $0.1 million of unrecognized compensation costs related to unvested restricted stock units is expected to be recognized over 6 months.

During the twelve months ended December 31, 2019 the Company reversed $0.1 million in share based compensation expense related to 240,000 unvested stock options that were forfeited as a result of employees exiting the company.

The company had no stock option or restricted share forfeitures during the twelve months ended December 31, 2018.

Restricted Common Stock Awards

A summary of the status of the Company's non-vested restricted common stock, as granted under the Company's approved equity compensation plans, as of December 31, 2019 and 2018, and changes during the twelve months ended December 31, 2019 and 2018, are presented below:

	2019		2018	
Non-vested Restricted Shares	**Number of Shares**	**Weighted Average Grant Date Fair Value**	**Number of Shares**	**Weighted Average Grant Date Fair Value**
Non-vested as of January 1	232,123	$ 1.68	159,207	$ 1.64
Granted	95,000	$ 1.56	225,000	$ 1.68
Vested and Issued	(64,583)	$ 1.70	(152,084)	$ 1.64
Forfeited	-	-	-	-
Non-vested as of December 31	262,540	$ 1.63	232,123	$ 1.68

The following table summarizes the restricted common stock awards granted to certain employees and officers of the Company during the years ended December 31, 2019 and 2018 under the 2012 Plan:

	Number of Shares	Fair Market Value per Granted Share	Vesting
2019			
1/11/19 - Service Grant - Employees	95,000	$ 1.56	Annual Vesting through January 2022
2018			
8/1/2018 – Service Grant – Employees	75,000	$ 2.01	Annual Vesting through August 2021
12/20/18 – Service Grant - Employees	150,000	$ 1.52	Annual Vesting through December 2022
2018 Total	225,000		

Restricted Stock Units:

In fiscal 2018 and fiscal 2019 the Company granted Restricted Stock Units (“RSU”) to each of our board members. Each RSU represents the Company’s obligation to issue one share of the Company’s common stock subject to the RSU award agreement and 2012 Plan. The RSU’s vest on the day before the first anniversary of the grant date or, if earlier, the effective date of a separation of service due to death or disability, provided the board member has rendered continuous service to the Company as a member of the board of directors from grant date to vesting date. Once vested, the RSU will be settled by delivery of shares to the board member no later than 30 days following: 1) the third anniversary of the grant date, 2) separation from service following, or coincident with, a vesting date, or 3) a change in control.

A summary of the status of the Company’s non-vested restricted stock units, as granted under the Company’s approved equity compensation plans, as of December 31, 2019 and 2018, and changes during the twelve months ended December 31, 2019 and 2018, are presented below:

	2019		2018	
Non-vested Restricted Stock Units	**Number of Shares**	**Weighted Average Grant Date Fair Value**	**Number of Shares**	**Weighted Average Grant Date Fair Value**
Non-vested as of January 1	125,000	$ 2.25	-	-
Granted	147,917	$ 1.56	125,000	$ 2.25
Vested and Issued	(125,000)	$ 2.25	-	-
Forfeited	-	-	-	-
Non-vested as of December 31	147,917	$ 1.56	125,000	$ 2.25

	Number of Shares		Fair Market Value per Granted Share	Vesting
2019				
5/30/2019 - Service Grant – Board of Directors	125,000	$	1.55	Annual Board Meeting – June 2020
7/8/2019 – Service Grant – Board of Directors	22,917	$	1.58	Annual Board Meeting – June 2020
2018				
6/5/2018 – Service Grant – Board of Directors	125,000	$	2.25	Annual Board Meeting – May 2019

Performance-Based Stock Option Awards

A summary of performance-based stock option activity, and related information for the years ended December 31, 2019 and December 31, 2018 follows:

	2019			2018		
	Options		Weighted Average Exercise Price	Options		Weighted Average Exercise Price
Outstanding as of January 1	305,000	$	1.45	605,000	$	1.21
Granted	-		-	-		-
Exercised	-		-	(300,000)	$	0.96
Forfeited	(200,000)	$	1.36	-		-
Expired	-		-	-		-
Outstanding as of December 31	105,000	$	1.61	305,000	$	1.45
Exercisable at December 31	20,000	$	0.78	20,000	$	0.78

The aggregate intrinsic value of performance-based stock options outstanding that were “in the money” (exercise price was lower than the market price) as of December 31, 2019 was $13,000 and the weighted average remaining contractual life was 1.0 years. All of the aforementioned performance-based stock options were exercisable as of December 31, 2019.

The range of exercise prices of outstanding performance-based options at December 31, 2019 is $0.78 to $1.83 with a weighted average exercise price of $1.61 per share.

Under the terms of the performance-based stock option agreements, the awards will fully vest and become exercisable on the date on which the Company’s Board of Directors shall have determined that specific financial performance milestones have been met, provided the employee remains in the employ of the Company at such time; provided, however, upon a Change in Control (as defined in the stock option agreements and the 2012 Plan), the stock options shall automatically vest as permitted by the 2012 Plan. As of December 31, 2019 and 2018, the Company has determined that the performance conditions on 85,000 and 285,000 options, respectively, granted in 2013 and later are probable of being achieved by the year ending 2021. The Company’s performance-based stock options granted prior to 2013 (consisting of 20,000 options) are fully amortized.

Service-Based Stock Option Awards

A summary of service-based stock option activity and related information for the years ended December 31, 2019 and 2018 follows:

	2019			2018		
	Options		**Weighted Average Exercise Price**	**Options**		**Weighted Average Exercise Price**
Outstanding as of January 1	1,975,000	$	1.52	1,815,000	$	1.53
Granted	15,000	$	1.56	160,000	$	1.52
Exercised	-		-	-		-
Forfeited	(40,000)	$	1.52	-		-
Expired	-		-	-		-
Outstanding as of December 31	1,950,000	$	1.52	1,975,000	$	1.52
Exercisable at December 31	1,515,000	$	1.50	1,225,000	$	1.49

The aggregate intrinsic value of service-based stock options outstanding that were "in the money" (exercise price was lower than the market price) as of December 31, 2019 was $77,600 and the weighted average remaining contractual life was 2.6 years. The aggregate intrinsic value of exercisable "in the money" service-based stock options as of December 31, 2019 was $72,225 and the weighted average remaining contractual life was 3.0 years.

The range of exercise prices of outstanding service-based options at December 31, 2019 is $1.30 to $1.92 with a weighted average exercise price of $1.52 per share.

The following table presents the assumptions used to estimate the fair value of stock option awards granted during the twelve months ended December 31, 2019 and 2018:

	Number of Options	**Option Term (in years)**		**Exercise Price**	**Risk Free Interest Rate**	**Expected Volatility**		**Fair Value at Grant Date**		**Expected Dividend Yield**
2019										
1/11/2019 – Service Grant	15,000	3	$	1.56	2.52%	49.80%	$	0.56	$	0.00
2018										
12/20/2018 – Service Grant	160,000	4	$	1.52	2.65%	48.53%	$	0.62	$	0.00

NOTE 10 - SEGMENT AND RELATED INFORMATION

Financial information by segment

The operating businesses of the Company are segregated into three reportable segments: (i) Network Solutions, (ii) Test and Measurement and (iii) Embedded Solutions.

Network Solutions

The Network Solutions segment is comprised primarily of the operations of the Company's subsidiary, Microlab. Network Solutions designs and manufactures a wide selection of RF passive components and integrated subsystems for signal conditioning and distribution in the wireless infrastructure markets, particularly for small cell deployments, distributed antenna systems ("DAS"), the in-building wireless solutions industry and radio base-station market. Network Solutions also offers active solution sets to assist in network timing for tunnels and in-building wireless signaling. Network Solutions customers include telecommunications service providers, systems integrators, neutral host operators and distributors.

Test and Measurement

The Test and Measurement segment is comprised primarily of the Company's operations of the Noisecom product line and the operations of its subsidiary, Boonton. Noisecom designs and produces noise generation equipment and instruments, calibrated noise sources, noise modules and diodes. Noise components and instruments are used as a method to provide wide band signals for sophisticated telecommunication and defense applications, and as a stable reference standard for instruments and systems, including radar and satellite communications. Boonton products are also used to test terrestrial and satellite communications, radar and telemetry. Certain power meter products are designed for measuring signals based on wideband modulation formats, allowing a variety of measurements to be made, including maximum power, peak power, average power and minimum power. Customers of the Test and Measurement segment include large defense contractors and the U.S. and foreign governments.

Embedded Solutions

The Embedded Solutions segment is comprised of the operations of CommAgility. Embedded Solutions supplies signal processing technology for network validation systems supporting LTE and emerging 5G networks. Additionally, this segment licenses, implements and configures LTE PHY layer and stack software for private LTE networks supporting satellite communications, the military and aerospace industries. Customers include wireless communication test equipment companies, defense subcontractors and global technology and services companies.

The accounting policies of the reportable segments are the same as those described in the summary of significant accounting policies. The Company allocates resources and evaluates the performance of segments based on income or loss from operations, excluding interest, corporate expenses and other income (expenses).

Financial information by reportable segment as of and for the years ended December 31, 2019 and 2018 is presented below (in thousands):

	For the twelve months ended December 31,			
	2019		2018	
Net sales by segment:				
Network Solutions	$	21,830	$	22,275
Test and Measurement		13,566		14,212
Embedded Solutions		13,525		16,301
Total consolidated net sales of reportable segments	$	48,921	$	52,788
Segment income:				
Network Solutions	$	2,973	$	3,476
Test and Measurement		2,125		1,728
Embedded Solutions		(1,049)		1,093
Income from reportable segments		4,049		6,297
Other unallocated amounts:				
Corporate expenses		(5,528)		(5,519)
Other expenses - net		(307)		(695)
Consolidated income/(loss) before Income tax provision/(benefit)	$	(1,786)	$	83
Depreciation and amortization by segment:				
Network Solutions	$	393	$	539
Test and Measurement		530		527
Embedded Solutions		1,228		1,239
Total depreciation and amortization for reportable segments	$	2,151	$	2,305
Capital expenditures by segment:				
Network Solutions	$	83	$	359
Test and Measurement		149		193
Embedded Solutions		160		301
Total consolidated capital expenditures by reportable segment	$	392	$	853
	December 31, 2019		December 31, 2018	
Total assets by segment:				
Network Solutions	$	9,610	$	10,088
Test and Measurement		7,380		5,943
Embedded Solutions		14,330		16,804
Total assets for reportable segments		31,320		32,835
Corporate assets, principally cash and cash equivalents and deferred income taxes		11,031		11,332
Total consolidated assets	$	42,351	$	44,167

Regional Revenues

Net consolidated revenues from operations by region were as follows (in thousands):

	Twelve Months Ended December 31	
	2019	2018
Americas	$ 30,161	$ 32,849
Europe, Middle East, Africa (EMEA)	16,500	16,269
Asia Pacific (APAC)	2,260	3,670
Total revenues	$ 48,921	$ 52,788

Net revenues are attributable to a geographic area based on the destination of the product shipment.

The majority of shipments in the Americas are to customers located within the United States. For the years ended December 31, 2019 and 2018, sales in the United States amounted to $30.0 and $31.9 million, respectively.

For the year ended December 31, 2019 shipments to the EMEA regions for all reportable segments were largely concentrated in the UK, Germany and Italy. Shipments to the UK, Germany and Italy in 2019 amounted to $12.7 million, $0.7 million and $0.5 million, respectively. For the year ended December 31, 2018 shipments to the EMEA region for all reportable segments were largely concentrated in the UK, Italy and Ireland. Shipments to the UK, Italy and Ireland in 2018 amounted $12.4 million, $0.5 million and $0.5 million, respectively.

The largest concentration of shipments in the APAC region is to China. For the years ended December 31, 2019 and 2018, shipments to China amounted to $1.3 million and $2.0 million, of all shipments to the APAC region, respectively. There were no other shipments significantly concentrated in one country in the APAC region.

NOTE 11 - RETIREMENT PLAN

The Company has a 401(k) profit sharing plan covering all eligible U.S. employees. Company contributions to the plan for the years ended December 31, 2019 and 2018 amounted to $0.3 million and $0.2 million, respectively.

NOTE 12 - INCOME TAXES

The components of income tax (benefit)/expense related to net income (loss) from operations are as follows:

	Years Ended December 31,	
	2019	2018
Current:		
Federal	$ (9)	$ -
State	45	46
Foreign	(859)	(223)
Deferred:		
Federal	(188)	389
State	(233)	(41)
Foreign	(128)	(123)
Total	$ (1,372)	$ 48

The following is a reconciliation of the maximum statutory federal tax rate to the Company's effective tax relative to operations:

	Years Ended December 31,	
	2019	2018
	% of Pre Tax Earnings	% of Pre Tax Earnings
Statutory federal income tax rate	(21.0)%	21.0%
State income tax net of federal tax benefit	0.1	137.5
Foreign rate difference	7.2	(239.7)
Change in valuation allowance	(10.6)	(138.2)
Permanent differences	0.9	11.8
Research and development incentive	(53.1)	(342.7)
Global intangible low-taxed income	1.3	607.6
Other	(1.6)	(0.2)
Total	(76.8)%	57.1%

In 2019, the difference between the statutory and effective tax rate is due primarily to research and development deductions in the United Kingdom and a reduction in the state valuation allowance. In 2018, the difference between the statutory and effective tax rate is due to global intangible low-taxed income, research and development deductions in the United Kingdom, foreign tax rate differences and a reduction in the state valuation allowance.

The components of deferred income taxes are as follows:

	Years Ended December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	$ 11,538	$ 11,259
Inventory	397	943
Research and development credit	648	648
Stock compensation	285	138
Other	326	73
Goodwill and intangible assets	(757)	(925)
Fixed assets	(275)	(438)
Gross deferred tax asset	12,162	11,698
Less valuation allowance	(6,652)	(6,722)
Net deferred tax asset	$ 5,510	$ 4,976

The Company has domestic federal and state net operating loss carryforwards at December 31, 2019 of approximately $18.2 million and $44.1 million, respectively, which begin to expire in 2029. $0.6 million of the federal net operating loss carryforward has no expiration. The Company also has foreign net operating loss carryforwards at December 31, 2019 of approximately $15.0 million for German trade tax purposes, which has no expiration. The Company has domestic federal interest expense carryforward at December 31, 2019 of approximately $0.2 million which has no expiration.

Realization of the Company's deferred tax assets is dependent upon the Company generating sufficient taxable income in the appropriate tax jurisdictions in future years to obtain benefit from the reversal of net deductible temporary differences and from utilization of net operating losses. The Company's valuation allowances of $6.7 million at December 31, 2019 and 2018 are associated with the Company's foreign net operating loss carryforward from an inactive foreign entity, state net operating loss carryforward and a state research and development credit. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. As of December 31, 2019, management believes that it is more likely than not that the Company will fully realize the benefits of its deferred tax assets associated with its domestic federal net operating loss carryforward.

The Company does not have any significant unrecognized tax positions and does not anticipate a significant increase or decrease in unrecognized tax positions within the next twelve months.

The Company has elected to record taxes related to the global intangible low-taxed income as a period cost.

NOTE 13 – FAIR VALUE MEASUREMENTS

Fair value is defined by ASC 820 "Fair Value Measurement" as the price that would be received upon selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 establishes a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. The hierarchy requires entities to maximize the use of observable inputs and minimize the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows:

- Level 1 - Quoted prices in active markets for identical assets and liabilities.
- Level 2 - Quoted prices in active markets for similar assets and liabilities, or other inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.
- Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets and liabilities. This includes pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

Payment of a portion of the CommAgility purchase price was contingent on the achievement of certain financial targets for the years ending December 31, 2017 and 2018. The Company estimated the fair value of contingent consideration at acquisition date to be $0.8 million. During the twelve months ended December 31, 2018 the Company reassessed the fair value of the contingent consideration and recorded a loss in the amount of $0.6 million as a result of the improved financial results at CommAgility as compared to prior estimates. The significant inputs used in the fair value estimate included anticipated gross revenues and Adjusted EBITDA, as defined, and scenarios for the earn-out periods for which probabilities are assigned to each scenario to arrive at a single estimated outcome. The estimated outcome was then discounted based on individual risk analysis of the liability which was 15% at December 31, 2018 and was paid in March 2019. The contingent consideration liability is considered a Level 3 fair value measurement.

NOTE 14 - COMMITMENTS AND CONTINGENCIES

Warranties

The Company typically provides one to three year warranties on all of its products covering both parts and labor. The Company, at its option, repairs or replaces products that are defective during the warranty period if the proper preventive maintenance procedures have been followed by its customers.

Legal Proceeding

On June 5, 2019 Harris Corporation ("Harris") filed a request for arbitration before the American Arbitration Association in accordance with the terms of an executed purchase order, statement of work and software license agreement (collectively referred to as "Agreements") with CommAgility entered into in 2014. Harris claims that CommAgility breached the Agreements by offering for sale, marketing, and promoting techniques, capabilities, products and services that incorporate Work Product, as defined in the Agreements, owned by Harris. Harris claims that CommAgility has caused Harris monetary damages, the sum of which cannot be determined until such time as discovery has been conducted, but is estimated by Harris to be less than $250,000. Harris is also seeking an injunction against CommAgility's use of the Work Product which includes rights to certain technology used for air-to-ground communications. The Company believes the claims are without merit and intends to defend all of the claims vigorously. The Company has not accrued any amounts in respect of this matter and cannot estimate the possible loss, if any, that the Company may incur with respect to it.

The ultimate outcome of this matter is unknown but, in the opinion of management, we do not believe this proceeding will have a material adverse effect upon our financial condition, cash flows or future results of operations. Legal expenses incurred in connection with the arbitration from August 2019 are covered by our professional indemnity insurance policy.

Risks and Uncertainties

Proprietary information and know-how are important to the Company's commercial success. There can be no assurance that others will not either develop independently the same or similar information or obtain and use proprietary information of the Company. Certain key employees have signed confidentiality and non-compete agreements regarding the Company's proprietary information.

The Company believes that its products do not infringe the proprietary rights of third parties. There can be no assurance, however, that third parties will not assert infringement claims in the future.

The Company's deferred tax asset is recorded at tax rates expected to be in existence when those assets are utilized. Should the tax rates change materially in the future the amount of deferred tax asset could be materially impacted.

NOTE 15 – SUBSEQUENT EVENTS

Holzworth Acquisition

On November 13, 2019 the Company entered into a Share Purchase Agreement with Holzworth Instrumentation Inc., a Colorado corporation (“Holzworth”), Jason Breitbarth, Joe Koebel, and Leyla Bly (collectively, the “Sellers”), and Jason Breitbarth, as the designated representative of the Sellers, as amended by a First Amendment to Share Purchase Agreement, dated January 31, 2020 (collectively, the “Share Purchase Agreement”). On February 7, 2020, the Company completed the acquisition (the “Acquisition”) of all of the outstanding shares of Holzworth, from the Sellers. The Acquisition was completed pursuant to the terms of the Share Purchase Agreement. Holzworth instruments which include signal generators and phased noise analyzers are used by government labs, the semiconductor industry, and network equipment providers, among others, in research and automated test environments. Holzworth is a complimentary business for our Test and Measurement segment with a common customer base and channel partners. Holzworth revenues for the year end fiscal 2018 were $4.0 million and for the nine months ended September 30, 2019 were $4.3 million. For the fiscal year ended December 31, 2020, the Company will report the financial results of Holzworth in our Test and Measurement segment.

The aggregate purchase price for the Acquisition is a maximum of $17.0 million, consisting of payments in cash and stock, deferred purchase price payments and contingent consideration in the form of an earnout. At the closing, the Company issued a promissory note, which required the Company to pay on the next business day $0.5 million of the purchase price by issuing 347,318 shares of its common stock (the “Stock Consideration”), and $8.0 million in cash (the “Cash Consideration”), reduced by an indemnification holdback of $0.8 million and payment of certain of Sellers’ transaction expenses and indebtedness of Holzworth. The parties intend to make a 338(h)(10) election to treat the Acquisition as a purchase and sale of assets, and the Company has agreed to pay any incremental taxes of Sellers resulting from that election.

The first deferred purchase price payment of $750,000 is due in three equal quarterly installments on March 31, 2020, June 30, 2020 and September 30, 2020, respectively. The second deferred purchase price payment of $750,000 is payable on March 31, 2021. Each deferred payment may be reduced as provided in the Purchase Agreement if Holzworth’s EBITDA (as defined in the Purchase Agreement) for each fiscal year ending December 31, 2019 and December 31, 2020, respectively, is less than $1.25 million.

The Company may also be required to pay additional amounts in cash and stock as earnout consideration. The first earnout payment will be equal to two times the amount, if any, by which Holzworth’s EBITDA for the fiscal year ending December 31, 2020 exceeds $1.25 million. The second earnout payment will be equal to two times the amount, if any, by which Holzworth’s EBITDA for the fiscal year ending December 31, 2021 exceeds the greater of $1.25 million or Holzworth’s EBITDA for the prior fiscal year. The aggregate earnout payments, if any, cannot exceed $7.0 million.

Pursuant to the Purchase Agreement the Company entered into a lock-up and voting agreement (the “Lock-up and Voting Agreement”) with each of the Sellers. Pursuant to the Lock-up and Voting Agreement, each Seller agrees to restrict the sale, assignment, transfer, encumbrance or other disposition of its portion of the Stock Consideration (the “Lock-up Shares”). For a period commencing on the closing date of the Acquisition (the “Effective Date”) and ending on the date which is 36 calendar months following the Effective Date, each Seller agrees that, without prior written consent by the Company, such Seller shall not sell, assign, transfer, encumber or otherwise dispose of the Lock-up Shares or enter into any swap, option or short sale, among other transactions. Upon the prior written consent of the Company, a Seller may transfer Lock-up Shares as a bona fide gift, by will or intestacy or to a family member or trust for the benefit of the Seller or a family member; *provided* that any recipient of the Lock-up Shares sign and deliver to the Company a lock-up and voting agreement substantially in the form of the Lock-up and Voting Agreement. The Lock-up Shares cease to be locked up in the event of a Change of Control (as defined in the Lock-up and Voting Agreement).

In addition, each Seller, subject to certain limitations, agrees, among other things, to appear at each meeting of the shareholders of the Company and vote all of such Seller’s Lock-up Shares (a) in favor or against any proposal presented to the shareholders in the same manner that the Company’s Board of Directors (the “Board”) recommends shareholders vote on such proposal and (b) in favor of any proposal presented to the shareholders with respect to an action of the Company, which the Board has approved, but as to which the Board has not made any recommendation, including in favor of any proposal to adjourn or postpone any meeting of the Company’s shareholders if such adjournment or postponement is conducted in accordance with the terms of the Lock-up and Voting Agreement.

To the extent any shares of Company common stock are issued in payment of any Earnout Consideration (as defined in the Share Purchase Agreement) in accordance with the terms of the Share Purchase Agreement, such shares shall be subject to all applicable transfer restrictions, voting and other provisions set forth in the Lock-up and Voting Agreement, with the Effective Date with respect to such shares being the date such shares were issued; provided that, to the extent the portion of the first $1.5 million of Earnout Consideration that is paid in cash represents less than 30% of such Earnout Consideration, the portion of shares of Company common stock issued as Earnout Consideration constituting the difference between the cash percentage paid and 30% of the first $1.5 of Earnout Consideration shall not be considered Lock-Up Shares.

New Term Loan Facility and Amended Credit Facility

In connection with the Acquisition, on February 7, 2020, the Company, as borrower, and its subsidiaries, as guarantors, and Muzinich BDC, Inc., as lender ("Muzinich"), entered into the Term Loan Facility, which provides for a term loan in the principal amount of $8.4 million (the "Initial Term Loan"). Principal payments on the Initial Term Loan are $21,000 per quarter with a balloon payment at maturity. The term loan bears interest at LIBOR (subject to a floor of 1.0%) plus a margin of 7.25%. The Term Loan Facility includes an upfront fee of 2.50% of the aggregate principal amount of the Initial Term Loan.

The Company may prepay the Initial Term Loan at any time. Prepayments made prior to (a) February 7, 2022 are subject to a prepayment premium in the amount of 2.0% of the prepaid principal amount and (b) February 7, 2023 are subject to a prepayment premium in the amount of 1.0% of the prepaid principal amount. The Company is required to make prepayments of the Initial Term Loan with the proceeds of certain asset dispositions, insurance recoveries and extraordinary receipts, subject to specified reinvestment rights. The Company is also required to make prepayments of the Initial Term Loan upon the issuance of certain indebtedness and to make an annual prepayment based upon the Company's excess cash flow. Mandatory prepayments with asset sale, insurance or condemnation proceeds and excess cash flow may be made without penalty. Mandatory prepayments with the proceeds of indebtedness are subject to the same prepayment penalties as are applicable to voluntary prepayments. The maturity date for the Initial Term Loan is February 7, 2025.

The Term Loan Facility provides for an additional $11.6 term loan (the "Second Term Loan") to be used for a second unannounced acquisition for which the Company has entered into a confidential, non-binding letter-of-intent (the "Additional Acquisition"). There can be no assurance that the Additional Acquisition will be completed. In the event the Additional Acquisition is completed, the Second Term Loan will be made available to the Company on the same terms and conditions as the Initial Term Loan, including interest rate, amortization schedule and financial covenants, subject to the payment of an additional upfront fee and satisfaction of customary conditions to funding.

The Term Loan Facility is secured by liens on substantially all of the Company's and its subsidiaries' assets including a pledge of the equity interests in the Company's subsidiaries. The Term Loan Facility contains customary affirmative and negative covenants for a transaction of this type, including, among others, the provision of annual, quarterly and monthly financial statements and compliance certificates, maintenance of property, insurance, compliance with laws and environmental matters, restrictions on incurrence of indebtedness, granting of liens, making investments and acquisitions, paying dividends, entering into affiliate transactions and asset sales. In addition, the Company must maintain certain financial covenants typical for this type of arrangement, including a consolidated leverage ratio, a consolidated fixed charge coverage ratio and minimum liquidity of its foreign subsidiaries. The consolidated leverage ratio is defined as the ratio of total consolidated indebtedness, as defined, to consolidated EBITDA, as defined. The required leverage ratio starts at 4.75 to 1.0 for the twelve month periods ended March 31, 2020 and June 30, 2020, and decrease in various increments to 3.75 to 1.0 for the twelve months ended December 31, 2020, 2.75 to 1.0 for the twelve months ended December 31, 2021 and 2.0 to 1.0 for the twelve months ended December 31, 2022 and thereafter. The consolidated fixed charge coverage ratio is the ratio of consolidated EBITDA, as defined, less consolidated capital expenditures and cash income taxes paid to consolidated fixed charges, as defined, calculated on a twelve month basis. The consolidated fixed charge coverage ratio for the twelve month periods ended March 31, 2020, June 30 2020 and September 30, 2020 must be 1.35 to 1 and increases in various increments on a quarterly basis to 1.5 to 1.0 for the twelve month period ended December 31, 2020 and 2021, and to 1.75 to 1.0 for the twelve months ending December 31, 2022 and thereafter. Lastly, the Company must maintain minimum liquidity, defined as cash and availability under the UK borrowing base, as defined, of $1.0 million over any trailing four-week period until such time as the foreign subsidiary has positive EBITDA, as defined, for three consecutive quarters and the Holzworth deferred purchase price has been paid in full. The Term Loan Facility also provides for a number of events of default, including, among others, nonpayment, bankruptcy, inaccuracy of representations and warranties, breach of covenant, change in control, entry of final judgement or order, breach of material contracts, and as long as the Company's consolidated leverage ratio is greater than 1.0 to 1.0 (as calculated in accordance with the terms of the Term Loan Facility), the cessation of service of any two of Tim Whelan, Michael Kandell or Daniel Monopoli as Chief Executive Officer, Chief Financial Officer or Chief Technology Officer, respectively, of the Borrower without a satisfactory replacement within 60 days. Any exercise of remedies by Muzinich is subject to compliance with the intercreditor agreement entered into at the closing of the Term Loan Facility among the Company, Muzinich and Bank of America, N.A., as lender under the Credit Facility referenced below.

Also in connection with the Acquisition, on February 7, 2020, the Company and certain of its subsidiaries (the "Borrowers"), and Bank of America, N.A. entered into Amendment No. 5 (the "Amendment") to the Credit Facility. By entering into the Amendment, Holzworth, together with CommAgility Limited, became borrowers under the Credit Facility. The obligations of the Borrowers under the Credit Facility are guaranteed by Wireless Telecom Group, Ltd., CommAgility Limited and Wireless Telecom Group, Ltd. are both wholly owned subsidiaries of the Company.

The Amendment (a) effected certain modifications to the Credit Facility to accommodate the Acquisition, the Company's incurrence of the Initial Term Loan and the granting of the related liens and security interests, (b) subject to the satisfaction of certain conditions precedent, made available to CommAgility an asset based revolving loan, subject to a borrowing base calculation applicable to CommAgility's assets, of up to a maximum availability of $5.0 million (the "UK Revolver Commitment"), (c) reduced the interest rate margin applicable to revolving loans made under the Credit Facility from a range of 2.75% to 3.25% to a range of 2.00% to 2.50%, based on the Borrowers' Fixed Charge Coverage Ratio (as defined in the Credit Facility) of the most recently completed fiscal quarter, (d) extended the Revolver Termination Date to March 31, 2023 and (e) conditioned the Borrowers' ability to make certain debt payments under the Term Loan Facility (described above) upon compliance with a liquidity test. In all other material respects, the Credit Facility remains unchanged.

Effectiveness of the Amendment was conditioned upon, among other things, the prepayment of the remaining principal balance (approximately $0.3 million) of the $0.8 million term loan made available under the Credit Facility and the payment of a closing fee in the amount of $25,000. The Borrowers satisfied all such conditions on February 7, 2020.

Issuance of Stock Warrants

Pursuant to the Term Loan Facility, the Company issued a Warrant, dated February 7, 2020 (the "Warrant"), to Muzinich. Under the Warrant, Muzinich has the right to purchase 266,167 shares of common stock of the Company at an exercise price of $1.3923 per share (an aggregate value of approximately $370,588), based on a 90-day volume weighted average price for shares of stock of the Company (the "Warrant Stock"). The Warrant is exercisable for an indefinite period from the date of the Warrant and may be exercised on a cashless basis. The number of shares of common stock deliverable upon exercise of the Warrant is subject to adjustment for subdivision or consolidation of shares and other standard dilutive events. In connection with the issuance of the Warrant, the Company granted Muzinich one demand registration right and piggyback registration rights with respect to the Warrant Stock, subject to certain exceptions.

If the Additional Acquisition is consummated, the Company has agreed to issue to Muzinich at the closing of the Additional Acquisition an additional Warrant for the right to purchase 367,564 shares of common stock of the Company at an exercise price of $1.3923 per share (an aggregate value of approximately $511,765), based upon a 90-day volume weighted average price for shares of stock of the Company as of February 7, 2020 (the "Additional Warrant"). The Additional Warrant will contain the same terms and conditions as the Warrant, except that Muzinich will have only one demand registration right, subject to certain exceptions, with respect to shares of common stock of the Company issued under the Warrant and the Additional Warrant.

NOTE 16 - SELECTED QUARTERLY FINANCIAL DATA (UNAUDITED)

The following is a summary of selected quarterly financial data from operations (in thousands, except per share amounts).

2019	Quarter			
	1st	2nd	3rd	4th
Net revenues	$ 13,032	$ 13,508	$ 10,812	$ 11,569
Gross profit	5,727	6,133	4,825	5,604
Operating income/(loss)	(398)	146	(677)	(550)
Net income/(loss)	(345)	157	(460)	234
Diluted earnings/(loss) per share	$ (0.02)	$ 0.01	$ (0.02)	$ 0.01

2018	Quarter			
	1st	2nd	3rd	4th
Net revenues	$ 13,264	$ 13,414	$ 14,019	$ 12,091
Gross profit	6,268	6,171	6,464	5,264
Operating income/(loss)	568	33	919	(741)
Net income/(loss)	374	(179)	558	(718)
Diluted earnings/(loss) per share	$ 0.02	$ (0.01)	$ 0.03	$ (0.03)

Item 9. <u>Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u>

None.

Item 9A. <u>Controls and Procedures</u>

(a) Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, as of the end of the period covered by this report, we conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Act of 1934. Our disclosure controls and procedures are designed to provide reasonable assurance that the information required to be included in our SEC reports is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, relating to Wireless Telecom Group, Inc. Based on this evaluation, our principal executive officer and principal financial officer concluded that, as of the period covered by this report, our disclosure controls and procedures are effective.

(b) Management's Report on Internal Control over Financial Reporting

The management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting. The Company's internal control over financial reporting is a process designed under the supervision of the Company's principal executive officer and principal financial officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's financial statements for external purposes in accordance with U.S. GAAP. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurances with respect to financial statement preparation and presentation. Additionally, 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.

As of December 31, 2019, management assessed the effectiveness of the Company's internal control over financial reporting based on the criteria for effective internal control over financial reporting established in "Internal Control — Integrated Framework," issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on the assessment, management determined that the Company maintained effective internal control over financial reporting as of December 31, 2019.

This annual report does not include an attestation report of the Company's independent registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the Company's independent registered public accounting firm pursuant to the Dodd-Frank Wall Street and Consumer Protection Act, which exempts non-accelerated filers and smaller reporting companies from the auditor attestation requirement of Section 404 (b) of the Sarbanes-Oxley Act.

(c) Changes in Internal Controls over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. <u>Other Information</u>

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required under this item is set forth under “Director Nominees and Executive Officers of the Company”, “Code of Business Conduct and Ethics” and “Corporate Governance Guidelines and Committees of the Board of Directors” in the 2020 Proxy Statement and is incorporated herein by reference.

Item 11. Executive Compensation

The information required under this item is set forth under “Executive Compensation”, “Compensation for the Named Executive Officers in 2019 and 2018”, “Director Compensation for 2019” and “Certain Relationships and Related Transactions” in the 2020 Proxy Statement and is incorporated herein by reference.

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

The information about our equity compensation plans is set forth under “Equity Compensation Plan Information” in Item 5 of this annual report on Form 10-K, and is incorporated herein by reference.

The information about security ownership of certain beneficial owners and management is set forth under “Security Ownership of Certain Beneficial Owners” in the 2020 Proxy Statement and is incorporated herein by reference.

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

The information required under this item is set forth under “Certain Relationships and Related Transactions” and “Corporate Governance Guidelines and Committees of the Board of Directors” in the 2020 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required under this item is set forth under “Fees Paid to Principal Accountants” and “Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Auditors” in the 2020 Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) (1) Report of Independent Registered Public Accounting Firm
Consolidated Balance Sheets as of December 31, 2019 and 2018
Consolidated Statements of Operations and Comprehensive Loss for the Two Years ended December 31, 2019
Consolidated Statements of Changes in Shareholders' Equity for the Two Years ended December 31, 2019
Consolidated Statements of Cash Flows for the Two Years ended December 31, 2019
Notes to Consolidated Financial Statements

(2) All other schedules have been omitted because the required information is included in the financial statements or notes thereto or because they are not required.

(3) Exhibits

3.1 Restated Certificate of Incorporation of Wireless Telecom Group, Inc. (incorporated herein by reference to Exhibit 3.1 to Wireless Telecom Group Inc.'s Annual Report on Form 10-K/A filed on April 22, 2005, Commission File No. 1-11916)

3.2 Amended and Restated By-laws (incorporated herein by reference to Exhibit 3.1 to Wireless Telecom Group, Inc.'s Current Report on Form 8-K, filed on July 1, 2016, Commission File No. 011-11916)

10.1* Wireless Telecom Group, Inc. 2000 Stock Option Plan (incorporated herein by reference to Annex B to the Definitive Proxy Statement of Wireless Telecom Group, Inc., filed with the SEC on July 17, 2000)

10.2* Amended and Restated Severance Agreement, dated December 10, 2012, between Wireless Telecom Group, Inc. and Paul Genova (incorporated herein by reference to Exhibit 10.8 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K, filed on April 1, 2013, Commission File No. 1-11916)

10.3* Severance Agreement, dated December 10, 2012, between Wireless Telecom Group, Inc. and Joseph Debold (incorporated herein by reference to Exhibit 10.9 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K, filed on April 1, 2013, Commission File No. 1-11916)

10.4* 2012 Incentive Compensation Plan of Wireless Telecom Group, Inc. (incorporated herein by reference to Annex A to the Definitive Proxy Statement of Wireless Telecom Group, Inc., filed with the SEC on April 30, 2012)

10.5* Form of Restricted Stock Award Agreement under 2012 Incentive Compensation Plan (incorporated herein by reference Exhibit 10.11 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K, filed on April 1, 2013, Commission file No. 1-11916)

10.6* Severance Agreement, dated June 14, 2013, between Wireless Telecom Group, Inc. and Robert Censullo (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group, Inc.'s Quarterly Report on Form 10-Q, filed on August 14, 2013, Commission File No. 1-11916)

10.7* Form of Stock Option Agreement under the Wireless Telecom Group Inc.'s 2012 Incentive Compensation Plan (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Quarterly Report on Form 10-Q, filed on November 14, 2013, Commission File No. 1-11916)

10.8*	Amended and Restated 2012 Incentive Compensation Plan of Wireless Telecom Group, Inc. (incorporated herein by reference to Appendix A to Wireless Telecom Group Inc.'s Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 30, 2014)
10.9*	Officer Incentive Compensation Plan of Wireless Telecom Group, Inc., dated April 22, 2015 (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 10-Q, filed with the SEC on May 13, 2015)
10.10	Fifth Amendment to Lease Agreement, dated May 1, 2015 and retroactively effective as of April 1, 2015, by and between Icon Keystone NJP III Owner Pool 4 NJ, LLC and Boonton Electronics Corporation (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on May 12, 2015, Commission File No. 001-11916)
10.11*	Executive Employment Agreement, dated June 30, 2016, between Wireless Telecom Group, Inc. and Timothy Whelan (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on July 7, 2016, Commission File No. 001-11916)
10.12*	Employment Letter Agreement, dated December 1, 2016, between Wireless Telecom Group, Inc. and Michael Kandell (incorporated herein by reference to Exhibit 10.12 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K, filed on March 20, 2017, Commission File No. 001-11916)
10.13*	Letter Agreement, dated December 1, 2016, between Wireless Telecom Group, Inc. and Robert Censullo (incorporated herein by reference to Exhibit 10.13 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K, filed on March 20, 2017, Commission File No. 001-11916)
10.14	Settlement Agreement and Site Release, dated December 16, 2016, by and among Wireless Telecom Group, Inc., Boonton Electronics Corp., WTT Acquisition Corp., Century Indemnity Company, as successor to Insurance Company of North America and Federal Insurance Company (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on December 22, 2016, Commission File No. 001-11916)
10.15*	Separation Agreement and General Release, dated February 10, 2017, between Wireless Telecom Group, Inc. and Robert Censullo (incorporated herein by reference to Exhibit 10.15 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K, filed on March 20, 2017, Commission File No. 001-11916)
10.16	Share Purchase Agreement, dated February 17, 2017, by and among Wireless Telecom Group, Inc., Wireless Telecommunications, Ltd., Edward De Salis Young, Paul Moakes, Simon Pack and Martin Hollinshead (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 21, 2017, Commission File No. 001-11916)
10.17	Registration Rights Agreement, dated February 17, 2017, by and among Wireless Telecom Group, Inc., Edward De Salis Young, Paul Moakes, Simon Pack and Martin Hollinshead (incorporated herein by reference to Exhibit 10.2 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 21, 2017, Commission File No. 001-11916)
10.18	Lock Up Agreement, dated February 17, 2017, by and among Wireless Telecom 8roup, Inc., Edward De Salis Young, Paul Moakes, Simon Pack and Martin Hollinshead (incorporated herein by reference to Exhibit 10.3 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 21, 2017, Commission File No. 001-11916)

10.19 Voting Agreement, dated February 17, 2017, by and among Wireless Telecom Group, Inc., Edward De Salis Young, Paul Moakes, Simon Pack and Martin Hollinshead (incorporated herein by reference to Exhibit 10.4 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 21, 2017, Commission File No. 001-11916)

10.20 Loan and Security Agreement, dated February 16, 2017, Wireless Telecom Group, Inc. Boonton Electronic Corporation, Microlab/FXR and Bank of America, N.A. (incorporated herein by reference to Exhibit 10.5 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 21, 2017, Commission File No. 001-11916)

10.21 Amendment No. 1 to Loan and Security Agreement by and among Wireless Telecom Group, Inc., Boonton Electronic Corporation, Microlab/FXR and Bank of America, N.A. dated August 3, 2017 (incorporated herein by reference to Exhibit 10.6 to Wireless Telecom Group's Quarterly Report on Form 10-Q filed on August 9, 2017, Commission File No. 001-11916)

10.22* Separation Agreement and General Release by and between Wireless Telecom Group, Inc. and Paul Steven Genova dated May 22, 2017 (incorporated herein by reference to Exhibit 10.7 to Wireless Telecom Group, Inc.'s Quarterly Report on Form 10-Q filed on August 9, 2017, Commission File No. 001-11916)

10.23* Amendment to Executive Employment Agreement by and between Wireless Telecom Group, Inc. and Timothy Whelan dated June 9, 2017 (incorporated herein by reference to Exhibit 10.8 to Wireless Telecom Group, Inc.'s Quarterly Report on Form 10-Q filed on August 9, 2017, Commission File No. 001-11916)

10.24* Separation Agreement and General Release by and between Wireless Telecom Group, Inc. and Joseph Debold dated November 30, 2017 (incorporated herein by reference to Exhibit 10.24 to Wireless Telecom Group, Inc.'s Annual Report on Form 10-K filed on March 12, 2018, Commission File No. 001-11916)

10.25* Form of non-employee director Restricted Stock Unit grant agreement (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group, Inc.'s Quarterly Report on Form 10-Q filed August 8, 2018, Commission File No. 001-11916)

10.26* Form of Stock Option Agreement under the Wireless Telecom Group Inc.'s 2012 Incentive Compensation Plan for grants after February 11, 2019

10.27* Form of Restricted Stock Award Agreement under the Wireless Telecom Group Inc.'s 2012 Incentive Compensation Plan for grants after February 11, 2019

10.28 Amendment No. 3 to Loan and Security Agreement by and among Wireless Telecom Group, Inc., Boonton Electronic Corporation, Microlab/FXR and Bank of America, N.A. dated February 26, 2019 (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group's Quarterly Report on Form 10-Q filed on March 5, 2019, Commission File No. 001-11916)

10.29 Amendment No. 4 to Loan and Security Agreement by and among Wireless Telecom Group, Inc., Boonton Electronic Corporation, Microlab/FXR and Bank of America, N.A. dated November 8, 2019 (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group's Quarterly Report on Form 10-Q filed on November 14, 2019, Commission File No. 001-11916)

10.30 Share Purchase Agreement, dated as of November 13, 2019, among Wireless Telecom Group Inc., Holzworth Instrumentation Inc., Jason Breitbarth, Joe Koebel and Leyla Bly, and Jason Breitbarth as the designated representative of Sellers (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on November 18, 2019, Commission File No. 001-11916)

10.31 Form of Lock-up and Voting Agreement (incorporated herein by reference to Exhibit 99.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on November 18, 2019, Commission File No. 001-11916)

10.32	First Amendment to Share Purchase Agreement, dated January 31, 2020, by and among Wireless Telecom Group, Inc. and Holzworth Instrumentation Inc., Jason Breitbarth, Joe Koebel and Leyla Bly ("Sellers"), and Jason Breitbarth as the designated representative of Sellers (incorporated herein by reference to Exhibit 10.2 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 3, 2020, Commission File No. 001-11916)
10.33	Credit Agreement, dated as of February 7, 2020, among Wireless Telecom Group, Inc., as the Borrower, and Certain Subsidiaries of the Borrower Identified Herein, as the Guarantors, and Muzinich BDC, Inc., as the Lender dated February 7, 2020. Schedules and exhibits omitted pursuant to Regulation S-K, Item 601(a)(5); will be furnished to the Securities and Exchange Commission upon request.
10.34	Amendment No. 5 to Loan and Security Agreement by and among Wireless Telecom Group, Inc., Boonton Electronics Corporation, Microlab/FXR LLC, Holzworth Instrumentation, Inc., CommAgility Limited, and Bank of America, N.A. dated February 7, 2020
10.35	Warrant dated February 7, 2020, by Wireless Telecom Group, Inc. in favor of Muzinich BDC, Inc. (incorporated herein by reference to Exhibit 10.1 to Wireless Telecom Group Inc.'s Current Report on Form 8-K, filed on February 13, 2020, Commission File No. 001-11916)
21.1	List of subsidiaries
23.1	Consent of Independent Registered Public Accounting Firm (PKF O'Connor Davies, LLP)
31.1	Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification pursuant to section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification pursuant to 18 U.S.C. section 1350
32.2	Certification pursuant to 18 U.S.C. section 1350
100.1	The following financial statements from Wireless Telecom Group, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2019, filed on March 19, 2020, formatted in Extensible Business Reporting Language (XBRL): (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Operations and Comprehensive Loss, (iii) Consolidated Statements of Cash Flows, (iv) Consolidated Statement of Changes in Shareholders' Equity, and (v) the notes to the consolidated financial statements. As provided in Rule 406T of Regulation S-T, this information is furnished and not filed for purposes of Securities 11 and 12 of the Securities Act of 1933 and Section 18 of the Securities Exchange Act of 1934

* Denotes a management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of Section 13 or 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.

WIRELESS TELECOM GROUP, INC.

Date: March 19, 2020

By: */s/ Timothy Whelan*
Timothy Whelan
Chief Executive Officer

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

Name	Title	Date
/s/ Alan L. Bazaar Alan L. Bazaar	Chairman of the Board	March 19, 2020
/s/ Timothy Whelan Timothy Whelan	Chief Executive Officer	March 19, 2020
/s/ Michael Kandell Michael Kandell	Chief Financial Officer	March 19, 2020
/s/ Joseph Garrity Joseph Garrity	Director	March 19, 2020
/s/ Mitchell Herbets Mitchell Herbets	Director	March 19, 2020
/s/ Michael Millegan Michael Millegan	Director	March 19, 2020
/s/ Allan D.L. Weinstein Allan D.L. Weinstein	Director	March 19, 2020
/s/ Joseph Manko Joseph Manko	Director	March 19, 2020